NHDES Wetlands Bureau Annual Report to U.S. EPA Region 1 for Calendar Year 2016

April 2017

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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NHDES Wetlands Bureau Annual Report to U.S. EPA Region 1 for Calendar Year 2016

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INTRODUCTION

This report has been prepared for EPA to provide a summary of the New Hampshire Department of Environmental Services (NHDES) Wetlands Bureau regulatory trends, activities, and updates on EPA grant-funded projects as part of NHDES' priority and partnership agreement with EPA. The NHDES Wetlands Bureau operates under the authority of the New Hampshire Revised Statutes Annotated (RSA) 482-A, the wetlands dredge and fill statute. The Wetlands Bureau oversees NHDES' regulation of impacts to freshwater and coastal wetlands, surface waters and their banks, dunes, the tidal buffer zone, and areas adjacent to designated prime wetlands. The Wetlands Bureau also administers RSA 483-B, the Shoreland Water Quality Protection Act, in which permitting and compliance activities within the Bureau are also reported on within this report. The regulation of impacts is accomplished primarily through the permitting process.

The mission statement of the Wetlands Bureau is "*to protect, maintain and enhance the environmental quality in New Hampshire through the powers set forth in RSA 482-A to regulate impacts to those areas "wherever the tide ebbs and flows" or "freshwater flows or stands*."

EPA GRANT UPDATES

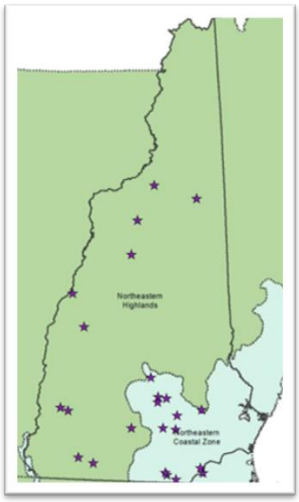
2013 Grant #1: Under the grant **Advancing Wetland Assessment in New Hampshire (CD98179201)** awarded in the fall of 2013, the major tasks are as follows:

1. Evaluate the applicability of Maine's macroinvertebrate protocols and model for wetland assessment in New Hampshire.

2. Develop criteria and classification information to support wetland assessment and wetland conservation status and apply new tools on existing data to improve knowledge of resources (Completed by the NH Natural Heritage Bureau in 2015 and found here: http://www.nhdfl.org/about-forests-and-lands/bureaus/natural-heritage-bureau/publications/report.aspx)

3. Improve the requirements for and technical review of wetland permit applications.

4. Develop new Memorandums of Agreement (MOAs) with sister programs and agencies.



Task 1: Apply Maine's biomonitoring methods and statistical modeling for aquatic macroinvertebrates to New Hampshire.

Field work under this task was completed in 2014 and 2015. In September 2015 NHDES provided the 2015 macroinvertebrate samples for 18 sites to the taxonomic contractor, ESS Group, for sorting, identification and enumeration. ESS Group provided the taxonomic results; NHDES reviewed them and sent them to the Maine Department of Environmental Protection (DEP) Biomonitoring Program for review and input through Maine's predictive model for wetland water quality. Adding the six sites that were sampled in 2014 brings the total number of sites sampled under this task to 24.

In October 2016, the Maine DEP Biomonitoring Program provided the results of the predictive model for the 18 sites sampled in 2015. The model-derived attainment classes assigned were: "A Attainment Class" for four wetlands, "B Attainment Class" for five wetlands, and "C Attainment Class" for four wetlands. For 11 wetlands, no attainment class could be predicted due to the macroinvertebrate samples not meeting the total abundance threshold (too few macroinvertebrates) or not meeting the generic richness threshold (lower diversity). Analysis of the attainment class, macroinvertebrate community comparisons, water quality sampling results, and vegetation survey data is under way.

Sandy Crystall submitted an abstract to the New England Association of Environmental Biologists (NEAEB) for a presentation at the March 2016 annual conference in Hartford, Connecticut.

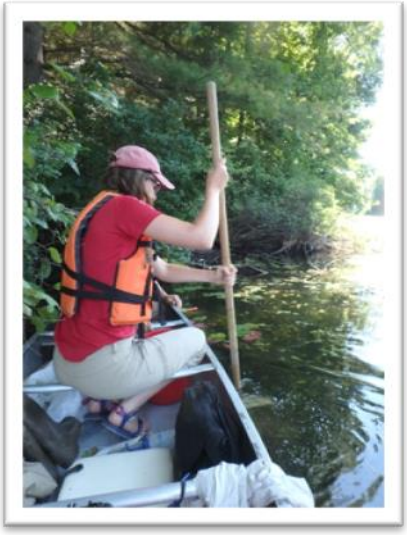
Task 6: The two main aspects to this task were for NHDES 1) to develop a GIS-based protocol for technical review of proposed impacts from projects that are the subject of wetland applications, and 2) to develop technical review checklists to provide guidance on GIS review and other considerations.

On March 1, 2016, NHDES submitted the reports for Task 6 – the new Wetlands Bureau GIS Protocol for identifying and evaluating impacts during the technical reviews for applications, as well as the new checklists for the permit technical reviews. NHDES developed a new SOP to ensure consistent digital location of permit GIS data for wetlands, shoreland and alteration of terrain applications. Additional GIS screening was added for cold water fisheries, the wildlife action plan and linking this information to the NHDES Database flagging this information for technical reviewers. Technical reviewers were provided access to cold water fishery model and mapping developed by the NHDES watershed management bureau.

Task 7: Develop new Memorandums of Agreement (MOAs) with sister programs and agencies.

NHDES continued to discuss the content of an updated MOA with the DRED-NHB and the New Hampshire Fish and Game Department. By the end of 2016, the final content and language of the MOA had been established and the multi-agency MOA was expected to be approved by all parties and submitted to EPA in early January 2017.

NHDES, DRED, NHB and Fish and Game established procedures for the NHB Data Check tool and coordination between our three agencies. Follow up meetings and trainings are planned to ensure decisions and communications are consistent with this MOA.



Task 8: Grant management. A no-cost time extension was sought and approved to allow additional time for analysis of data, especially with the 11 wetlands for which the attainment class could not be predicted by the model. The end date for deliverables is now December 31, 2017.

2015 Grant #1: Under the grant, **Wetland Biocriteria and Outreach tools in New Hampshire (CD00A00014),** awarded in the fall of 2015, the major tasks are as follows:

1a. Investigate development of numeric biocriteria thresholds for aquatic life use support in fringing and emergent wetlands.

1b. Develop and test aquatic vegetation sampling protocols with Maine to use with the standard wetland biomonitoring protocols being used by New Hampshire and Maine.

2. Evaluate and document historical exemplary wetland systems so they can be reliably used for environmental reviews and conservation planning (NHB).

3. Develop thresholds for interpreting Floristic Quality Assessment (FQA) scores that are specific to New Hampshire wetland types (NHB).

4. Update the New Hampshire Wetlands Program Plan for 2017-2023 timeframe.

5. Develop resources for new Wetlands Mitigation Pre-application Coordination Resources web page.

6. Develop new wetlands message and outreach tools that incorporate new published research and eLearning methods and tools for the public.

7. Grant Administration, Quality Assurance, Outreach and Reporting.

In October of 2015, NHDES began working on tasks associated with the new grant.

Task 1a: Investigate development of numeric biocriteria thresholds for aquatic life use support in fringing and emergent wetlands.

In preparation for the 2016 field season, in June of 2016 NHDES coordinated a training session in New Hampshire with Maine DEP wetland biomonitoring staff to review modified macroinvertebrate sampling protocols when the substrate is soft, mucky organic matter, a situation that was encountered during previous sampling and affects the ability to obtain a macroinvertebrate sample without excessive organic material.

NHDES first identified wetlands to sample and then conducted reconnaissance of the potential wetland sampling locations to ensure that the sites would meet the required criteria – type, water depth and accessibility (and landowner permission). NHDES' wetlands sampling intern returned for the 2016 season.

NHDES began sampling wetlands early in July of 2016 and completed sampling of seven wetlands by mid-August. Of the seven sites sampled, NHDES needed (requested and obtained) landowner permission to sample one of those sites. The seven wetlands sampled are listed in Table 1 below.

Table 1: Wetlands Sampled by NHDES in 2016 (Task 1)

Town	Wetland	HUC8 Watershed
Antrim	Rye Pond	Contoocook River
Concord	Horseshoe Pond - East	Merrimack River
Concord	Horseshoe Pond - Middle	Merrimack River
Danbury	Danbury Bog / Bog Pond / Benton Pond	Pemigewasset River
Hillsborough	Farrar Marsh / Sand Brook	Contoocook River
New Durham	Merrymeeting Marsh	Winnipesaukee River
Washington	unnamed stream in town forest	Contoocook River

The macroinvertebrate samples were provided to the taxonomic contractor for processing and identification and the results were provided to NHDES in March 2017 and after review to Maine DEP for processing in the predictive water quality model.

Task 1b: Develop and test aquatic vegetation sampling protocols with Maine to use with the standard wetland biomonitoring protocols being used by New Hampshire and Maine.

During the June training session described above in Task 1a, the New Hampshire wetland sampling team demonstrated the current vegetation sampling protocol being used alongside Maine's macroinvertebrate protocols. NHDES also conducted research on aquatic vegetation sampling protocols and shared with Maine DEP Biomonitoring staff. Additional discussions and development of a draft SOP will precede the use of the proposed protocols during the 2017 field season.

Task 2 (NHB): Evaluate and document historical exemplary wetland systems so they can be reliably used for environmental reviews and conservation planning.

NHB reviewed 483 wetland natural community records, cross-walked each to wetland system type, then evaluated their suitability to Ecological Integrity Assessment (EIA) application. Natural community records were eliminated from further evaluation if they represented 1) natural community types not suitable for application of EIA (such as a community type that comprises only a small extent of a wetland system), or 2) natural community types diagnostic of two or more system types (e.g., alder alluvial shrubland associated with seven different system types). Of the remaining wetland natural communities in the dataset, records for approximately 15 of the following 16 wetland system types are planned for further evaluation (remaining Task 2 and 3 subtasks):

- Black spruce peat swamp system.
- Calcareous sloping fen system.
- Coastal conifer peat swamp system.
- Drainage marsh - shrub swamp system.
- Forest seep / seepage forest system.
- Kettle hole bog system.
- Major river silver maple floodplain system.
- Medium level fen system
- Montane / near-boreal floodplain system.
- Montane / near-boreal minerotrophic peat swamp system.
- Montane sloping fen system.
- Patterned fen system.
- Poor level fen / bog system.
- Temperate minerotrophic swamp system.
- Temperate minor river floodplain system.
- Temperate peat swamp system.

NHB began to resurvey wetland systems to inform Floristic Quality Assessment benchmark thresholds. The following systems and sites were surveyed:

- Calcareous sloping fen system
  (Comerford Dam, Monroe / 3 relevé plots completed)
- Montane/near-boreal minerotrophic peat swamp system
  (Moat Brook, Conway / 4 relevé plots completed)

Task 3 (NHB): **Develop thresholds for interpreting Floristic Quality Assessment (FQA) scores that are specific to New Hampshire wetland types.**

The work is scheduled to be completed in 2017.

Task 4: Update NH Wetland Program Plan for 2017-2023 timeframe.

In the fall of 2016, NHDES held an internal meeting concerning areas to update in the Wetland Program Plan (WPP). The WPP update is expected to be completed in early 2017.

Task 5: Develop resources for new Wetlands Mitigation pre-application coordination resources web page.

The Wetland Mitigation Preapplication Process webpage with links to resources was developed in 2016.

Task 6: **Develop new wetlands message and outreach tools that incorporate new published research and eLearning methods and tools for the public.**

NHDES and the Public Information Office staff interviewed and filmed a Certified Wetland Scientist at a wetland and river system. The film has been edited and circulated for review. Internal training developed in 2016 and early 2017 have and will provide initial outreach materials for review and dissemination. Additional short training modules on stream function and bank stabilization are being considered for 2017. The work is scheduled to be completed in 2017.

Task 7: Grant administration, quality assurance, outreach, and reporting.

NHDES sought and obtained approval from Fiscal Committee and Governor and Council (G&C) to accept and expend grant funds awarded and obtained G&C approval to provide grant funds to the NHB. NHDES amended (extended and added funds to) the existing contract for the processing and identification of macroinvertebrate samples to address samples to be collected in 2016 and completion of QA process.

Additional Wetlands Work

NHDES participates in EPA's National Aquatic Resource Surveys (NARS) and in 2016 the second National Wetland Condition Assessment (NWCA) was conducted. Sandy Crystall attended the NWCA train-the-trainer workshop in Gulf Breeze, Florida, at the invitation of EPA, taught the vegetation protocols at the Region 1 NWCA training in Chelmsford in May, and served as the botanist / ecologist for the New Hampshire surveys.

NHDES conducted the 10 surveys at the assigned sites between July and September. In addition, in response to a request from the EPA Region 1 lab, NHDES agreed to survey an additional two reference wetlands. This effort involved locating two nontidal wetlands that met certain criteria and determining appropriate access for the team (and landowner permission), before the sampling could occur. The following wetland sites were surveyed in 2016:

Table 2: Additional Wetlands Surveyed by NHDES in 2016

NWCA Site ID	Location
16-3493	Pittsburg (Revisit / Sampled Twice)
16-3494	Stark (Revisit / Sampled Twice)
16-3496	Pittsburg
16-3499	Seabrook
16-3495	Portsmouth
16-3497	Hampton
16-3500	Barrington
16-3509	Hampton
16-R222	Salisbury
16-R223	Orford

NHDES has also acted as the NWCA NH herbarium and lab, and coordinated review of the 60 quality assurance samples by Karl Benedict of NHDES and 10 percent of the initially unknown samples that had been subsequently identified by Bill Nichols of NHB. Additional identification of some unknown specimens was provided by Rick van de Poll, PhD.

Wetland Water Quality Standards Outreach to other States

Coastal Wetlands Monitoring Workgroup of the Governors South Atlantic Alliance, June 2016

Sandy Crystall provided a webinar presentation to the Coastal Wetlands Monitoring Workgroup of the Governors South Atlantic Alliance (North Carolina, South Carolina, Georgia and Florida) to share New Hampshire's experience and process with developing numeric criteria for wetland water quality standards. The purpose of the workgroup is to compile a database of available monitoring data in the four states, evaluate their current monitoring programs, and make recommendations for synergies and new areas of study. The workgroup has 15-20 people from state and federal agencies and universities. The workgroup was focusing on the application or use of wetland monitoring data. A specific area of interest was the development of numeric criteria for wetland water quality standards. The workgroup is supported by an EPA Region 4 Wetland Program Development Grant.

Joint EPA / ACWA / ASWM Webinar, July 2016

A webinar jointly organized by EPA, the Association of Clean Water Administrators (ACWA), and the Association of Wetland Managers (ASWM) was held to provide information on the new wetland water quality templates. Three representatives from the state, including Sandy Crystall, were invited to participate to discuss development of wetland water quality standards in their states to compare and contrast activities across the country. The webinar provided an opportunity for webinar participants to learn about the templates as well as hear from states that are working on the development of wetland water quality standards and what potential relevance the templates might have to that process. Since NHDES is working on developing numeric criteria, we don't foresee using the narrative templates.

2013 Grant #2: Enhancing Mitigation Procedures and Tracking (CD96179301-0)

NHDES received a second grant from EPA in 2013 titled "Enhancing Mitigation Procedures and Tracking." NHDES began implementation of Grant #2 on October 1, 2013, and submitted the final report in March, 2016. The three main projects under the grant included the following:

1. Build the mitigation program capacity by developing new procedures for review and developing a tracking system.

2. Coordinate training on the NH Method, Level 2 EIA, and Natural Plant Community Systems to wetland professionals and local communities.

3. Update the New Hampshire Wetland Program Plan to include adaptations and a resiliency plan on climate change.

The project objectives for the grant were the following:

1A. Develop new mitigation procedures including materials for submission with Wetlands applications and establish pre-application review. Work with partners and stakeholders to revise wetland mitigation rules to address new guidelines and process.

1B. Develop new evaluation guidelines for mitigation proposals and ARM Fund projects that take into consideration climate change adaptation goals.

2. Implement new mitigation procedures with the goal of establishing standard operation procedures by NHDES staff, incorporate changes into staff training plan, and provide appropriate outreach to regulated community on new process.

3. Hire additional mitigation staff to assist in the establishment of a new tracking system that identifies the type, amount and specific resources impacted on mitigation proposals and on ARM Fund proposals.

4. Conduct a review of permits that included a payment into the ARM Fund and projects that received funds and populate the RIBITS database for federal compliance.

5. Provide NH Method Training to improve community knowledge on wetland functions and collect user data for method improvement and study inter-observer variability.

6. Conduct training on EIA and Natural Plant communities to improve professional knowledge on plant systems.

7. Update NH Method and Level 2 EIA, and identify improvements for NH Mapper Tool.

8. Develop NHDES Wetlands Bureau Climate Change Plan.

9. Provide grant administration, quality assurance and outreach on the gran components and submit reports so the grant project is managed according to established timeframes and budget terms.

On March 1, 2016 NHDES provided the final report to EPA on this grant. Work products developed from this grant included the following:

- Adoption of new NHDES Wetlands Bureau Mitigation rules.
- Development of a new Standard Operating Procedure for scheduling of pre-application meetings.
- Development of a NHDES Wetlands Bureau pre-application webpage.
- Development of a new guidance for new evaluation guidelines for mitigation proposal and ARM Fund projects that take into consideration climate change adaptation goals.
- Pre-Proposal Preparation (SOP 16-2) executed.
- ARM Fund Disbursal process (SOP 16-13) was executed.
- Hired new mitigation staff position to establish mitigation tracking system.
- NH Method training provided (See UNHCE 2015 report).
- 2015 NH Method updates revised to include clarity in consistent application.
- DRED-NHB report on EIA training and EIA updates.
- Identification of improvements to the Data Mapper.
- NHDES Wetlands Climate Action Plan (2015).
- Revised NH Wetland Program Plan that included climate change activities.

2015 Grant (Track 2): Building Climate Change Resiliency in New Hampshire by Prioritizing Wetland and Stream Mitigation Opportunities (CD 00A00016)

Task 1: Update of NWI Mapping

NHDES contracted Virginia Tech (VT) to update and provide enhanced National Wetlands Inventory (NWI) maps for the Merrimack and Salmon Falls watersheds. Mapping updates were initiated in the first quarter of 2016 and during the summer of 2016; VT conducted field verification in different areas of the watersheds. The mapping effort for this project is nearly complete and the final deliverable is expected to be provided to NHDES in the coming month. Updates to the map include:

- Wetlands and deepwater habitat classified according to the Cowardin wetland classification system with the most recent hi-resolution photography and complies with the U.S. Fish and Wildlife Service (FWS) data collection guidelines for inclusion in the NWI master geodatabase.
- Mapping completed at a minimum scale of 1:8,000 and a target mapping unit (TMU) of 0.25 acres
- Application of the NWI+ Wetland Classification system developed by FWS (Tiner, 2011) to provide a landscape-level assessment of the wetland which includes landscape position, landform, water-flow path and water-body type descriptors (LLWW), followed by the assignment of wetland function.

Once finalized, the NWI updates will be integrated to the FWS NWI Mapper and the LLWW information will be integrated on New Hampshire's Statewide Geographic Information System (GIS) Clearinghouse, NH GRANIT.

Task 2: Re-establish statewide stream crossing technical advisory committee.

In early 2016 the state-wide Stream Crossing Technical Advisory Committee (STAC) was re-established. This committee is headed by Shane Csiki of the New Hampshire Geological Survey at NHDES. The committee is comprised of members from the NHDES Wetlands Bureau, New Hampshire Department of Transportation (NHDOT), Homeland Security and Emergency Management (HSEM), and NHFG. While the core of the STAC consists of State entities, other partner agencies including UNH, Trout Unlimited, consulting firms and regional planning commissions are consulted as necessary.

Stream crossing advisory meetings were conducted monthly from January to May 2016 to prepare for the field season. These meetings focused on streamlining and developing a consistent sampling protocol. After the summer field season the STAC met several times to review lessons learned from the sampling season and to review outputs from the culvert prioritization model developed as part of a NHDOT funded project (See Task 5).

As the stream crossing initiative continues to expand and encompasses a variety interests, it became clear there is a growing amount of work to be done to coordinate assessments, maintain a consistent protocol with evolving knowledge and needs, continue to advance the database and data collection efforts to address these needs, and to conduct outreach. To address this workload in an efficient manner, four subcommittees were started which will meet in work groups and then report progress and make recommendations to the STAC. These committees include:

1. **Protocol Development and Training Team:** A general consensus of STAC, and those working with data management in this program, was that the current Stream Crossing Assessment Protocol was too lengthy. The first goal of the Protocol Development Team was to screen all of the variables currently collected in the field, and stored in the online geodatabase (125 parameters total), to determine those that are essential for stream crossing rankings and those that can be omitted. The objective of this exercise was to identify the variables that are critical for each agencies decision–making and ranking scheme, and to ensure all agencies' needs are represented in a single, stream-lined protocol. The Protocol Development and Training Team consists of four members and includes employees of NHFG, NHDES and NHDOT, and met twice on March 23 and April 3. Within these two meetings the subcommittee was able to reduce the number of parameters collected in the field to 82 essential variables, essentially increasing the efficiency of a field team's ability to assess a stream crossing, but without compromising the data needed to run the scoring algorithms. The second task allocated to the Protocol Development and Training Team is to revise the field guide to include clear definitions, diagrams, and example photographs, for clarity and quality control of data. This task is well under way, and a first draft has been produced and is currently being edited by the subcommittee. The final draft will be available for distribution in May 2017.

2. **Database and Data Management** (inclusive of SADES): This subcommittee is led by Tom Taggart, at NHDES Geological Survey, and members from NHDOT, UNH T^2 and NHFG. The goal of this subcommittee is to incorporate the newly updated Stream Crossing Assessment Protocol into the online geodatabase hosted by T^2 at UNH. After the 2016 field season, several database management issues were identified during the Quality Control process, and this team is actively working to adjust the database to accommodate changes to the field protocol and data structure. This subcommittee had its first meeting in April and has already made significant progress in modifying the database- these changes will be in the online version in time for the upcoming summer 2017 field season.

3. **Outreach and Ranking Reporting:** The chair of this subcommittee is Cheryl Bondi from NHDES Geological Survey, and includes members from NHDES Wetlands Bureau, NHFG, HSEM and NHDOT. Because of the variety of stakeholders (town officials and safety personnel, road agents, conservation groups, and stage agencies) that have interest in the stream crossing data and the output of the rankings, the STAC recognized the importance of consistent communication of the results and program initiative. This subcommittee was developed to create a consistent mission and message for the program to be communicated to the various groups. The subcommittee is currently working on outreach materials such as a brochure and fact sheets that can be distributed to stakeholders. In addition, the final stream crossing rankings needs to be communicated consistently among the state agencies, so this subcommittee is working on developing a cartographic standard (symbology and map overlays) for presentation at public information meetings.

These committees will present their results and progress to the larger Stream Crossing Technical Advisory Committee at their quarterly meetings to ensure all program administrators and managers are involved in final decisions. The spring meeting of the Stream Crossing Technical Advisory Committee is scheduled for April 21, 2017, in which each subcommittee will present to the larger group. The formation of the subcommittees has been a significant improvement to the program and greatly increased the efficiency of the four agencies working together.

Task 3: Collection of stream crossing field data.

Cheryl Bondi was hired as an Environmentalist III with the New Hampshire Geological Survey to assist with the stream crossing initiative. In addition, Cheryl's background in ecosystem ecology / aquatic biology was an immediate asset to refining the Aquatic Resource Mitigation (ARM) Fund Program selection criteria for funding stream restoration projects. Most recently Cheryl has engaged with NHFG to develop a statewide fisheries screening map, which will consider information on aquatic species presence, abundance and habitat data. This GIS layer will be useful in prioritizing future culvert inventories as well as stream crossing improvement efforts.

Stream crossing assessments were completed during the summer of 2016 with two-interns (wetlands program match for this grant) to complete stream crossing assessments in the Merrimack River watershed. In addition, assessments were also conducted by two interns from the New Hampshire Coastal Program in the Seacoast Watershed. The two teams surveyed a total of 585 stream crossings and this data is being used to develop better stream prioritization criteria. This partnership and expansive data collection is critical in developing criteria that is applicable to all watersheds, and ultimately to Towns that have different issues and characteristics.

All data collected during the summer 2016 field season has undergone QA/QC review and Aquatic Organism Passage and Geomorphic Scores calculated. Some crossings require additional information from the collectors for final QA/QC and this work is on-going. In addition, data gaps and QA/QC issues from past seasons continues to be completed with more scores being added as they are completed.

Between Cheryl and a second NHGS hire, Tom Taggart, the Stream Crossing protocol and data review process has become much more efficient, refined and stream-lined. They are also leading an effort on protocol updates and better training to make the entire process more efficient. It is anticipated that productivity will increase summer.

All sampling teams conducting assessments uploaded information to the Statewide Asset Data Exchange System (SADES), a cloud based platform coordinated by NHDOT and UNH T^2. Use of this platform reduces duplication of efforts as data is shared among partners. Data collection is streamlined by using a mobile

device and cloud technology; paper forms and data transfer are not required. This allows for consistent data collection as all parties are collecting and entering data using the same forms. By using a cloud based data exchange, NHGS can conduct QA/QC nearly real-time as the data is collected and prompt feedback can be provided to data collectors in the field. This information can then be used to correct potential sampling errors or inconsistencies throughout the field season; rather than once all the data has been collected and submitted, typically at the end of a field season.

Task 5: Culvert prioritization model.

Southern New Hampshire Planning Commission (SNHPC), with assistance from NHDOT, contracted with Milone & MacBroom (MMI) and developed a decision-making screening tool to aid communities in the Piscataquog River Watershed to select priority culvert replacement and stream crossing restorations. NHGS and NHDES (among others including Trout Unlimited (TU), UNH, and New Hampshire Department of Homeland Security) were invited to be part of the technical advisory committee (TAC). The Piscataquog project was also the cover story "Getting Ahead of the Storm: Developing a tool that helps road officials prioritize culvert repair or replacement" in the April–June 2016 issue of *New Hampshire Highways* magazine.

The model proposed in this Piscataquog Watershed was similar to the criteria proposed in this grant so NHGS and NHDES' participation on the TAC was very timely and informative. The Piscataquog Watershed project built on previous studies and data collected in the watershed including culvert inventories, geomorphic compatibility screening, approximate hydraulic capacity analysis modeling and AOP screening. The new model draws on existing data and prioritizes culverts for replacement to improve flood resiliency and reconnect aquatic habitat. The final model reporting and presentation to communities was conducted in December 2016[1].

Upon completion of this project, NHGS and NHDES reviewed the model and considered if this could be applied to other watersheds. While the towns that participated in this planning model found value in the prioritization, only three to five towns in the watershed were directly involved in the project. To better understand where other towns may fall on their understanding and progress towards prioritizing culvert replacements, Shane Csiki from NHGS met with representatives from other regional planning commissions. During this discussion it was apparent that additional outreach and more assessments were the critical tasks to implementing a broader scale prioritization model. Until more towns are engaged, and more assessments are done, the prioritization model will be limited. As such, the program continues to focus efforts on completing assessments.

Task 6: Update conservation layers -post 2006.

Due to the upgrade of the wetlands database upgrade this work was postponed and will resume in 2017 with our new Oracle database.

[1] http://snhpc.org/pdf/PiscataquogCulvertModelFinalReport.pdf

Task 7: Conduct outreach of updated information

In addition to attending meetings and providing outreach with the project partners, members of NHGS and the wetlands mitigation program have been involved in many outreach activities including:

- Presenting at the 2016 Saving Special Places conference, Alton, NH.
- Outreach and participation during Piscataquog meetings, New Boston, NH.
- Participation at Trout Unlimited / U.S. Forest Service / U.S. Fish & Wildlife Service Stream Restoration and Flood Resiliency Workshop, Hadley, MA.

Task 8: Cross training permitting staff

During the summer of 2016, three wetlands staff were trained on the NH Stream Crossing Protocol by NHGS to better understand what data is collected, and how this data may be used during application review and wetlands permitting. This allowed staff to receive field training on parameters they often review during permit or compliance review.

PERMITTING ACTIVITIES

Permits Received

The number of standard dredge and fill permit applications received by the Wetlands Bureau has remained relatively stable over the past several years. As the economy has continued to improve, the number of applications has steadily increased. However, in 2016, the Wetlands Bureau issued 54 more standard dredge and fill permits than in 2015. This is illustrated in Table 3 and Figure 1. Please note that the total number of applications received for 2016 in Figure 1 also includes 22 ARM Fund applications.

Table 3: 10-Year Trend of Wetlands Standard Dredge and Fill Applications Received (2007-2016)

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
840	602	539	514	485	501	501	581	527	581

In 2016, the Wetlands Bureau issued 163 more notifications and applications than in 2015. This is illustrated in Table 4 below.

Table 4: 10-Year Trend of All Wetland Permit Applications and Notifications Received (2007-2016)

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
2,479	2,109	2,006	2,383	2,287	2,158	2,159	2,255	2,048	2,211

The number of Standard Shoreland permit applications received by the Wetlands Bureau has fluctuated over time. Applications received increased from 2008 to 2009, decreased from 2009 to 2010, decreased from 2010 to 2012, and increased again from 2012 through 2016. In 2016, the Wetlands Bureau issued 16 more standard Shoreland permit applications than in 2015. This is illustrated in Table 5 and Figure 2.

Table 5: Nine-Year Trend of Standard Shoreland Permit Applications Received (2008 – 2016)*

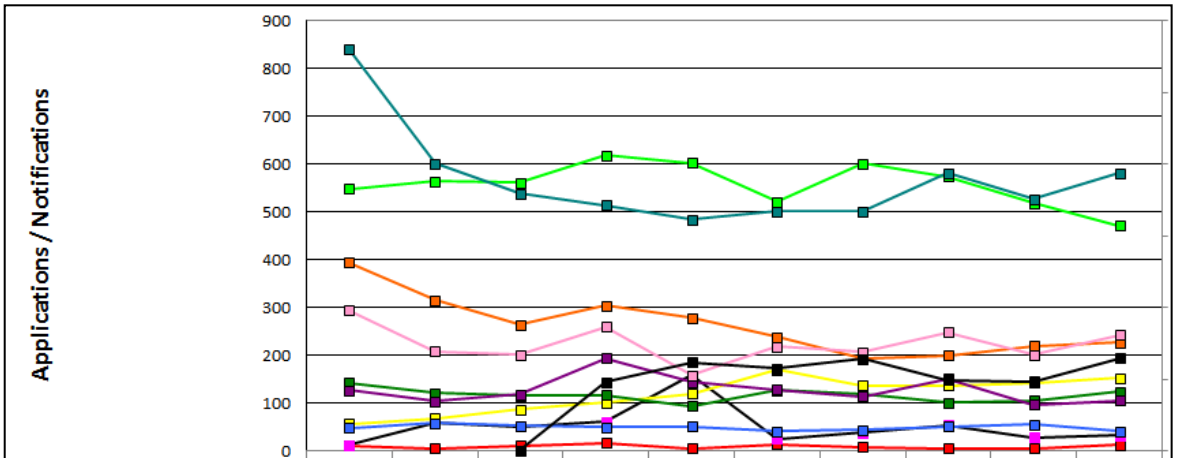
2008	2009	2010	2011	2012	2013	2014	2015	2016
381	797	817	626	466	546	518	605	621

Similarly, the total number of all Shoreland permit applications received by the Wetlands Bureau also fluctuated. Applications received increased dramatically from 2008 to 2009, stayed relatively stable in 2010, dropped slightly in 2011, but then saw an annual increase from 2012 through 2015. In 2016, the Wetlands Bureau issued 30 less Shoreland applications than in 2015. This is illustrated in Table 6 and Figure 2.

Table 6: Nine-Year Trend of All Shoreland Permit Applications Received (2008 – 2016)*

2008	2009	2010	2011	2012	2013	2014	2015	2016
449	802	823	781	915	1075	1086	1196	1167

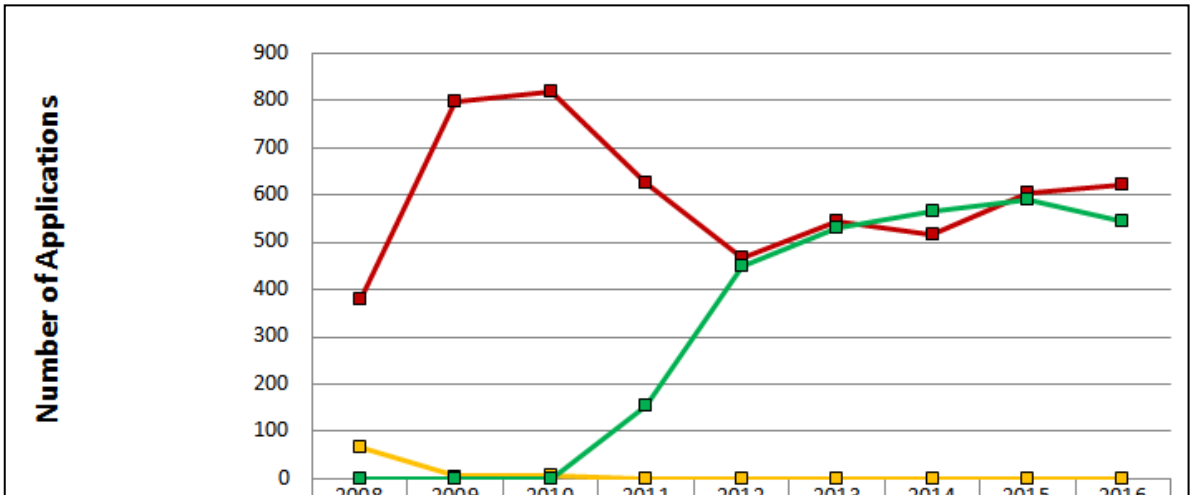
*The permitting process for the New Hampshire Shoreland Water Quality Protection Act (RSA 483-B) began on July 1, 2008.



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Ag Minimum	12	6	12	17	6	14	9	6	6	13
Emergency	13	58	51	61	159	26	38	55	28	33
Expedited	394	316	264	305	278	238	195	200	220	227
Gold	57	69	87	102	120	170	137	137	143	153
Forestry	549	564	561	618	603	521	602	574	518	472
Seasonal Dock	143	122	116	117	94	127	119	102	106	125
Standard	840	602	539	514	485	501	501	581	527	581
Trails	49	59	53	50	52	41	44	51	56	41
Roadway	127	105	119	195	145	129	114	152	97	106
PBN	295	208	202	260	159	218	207	249	201	243
Utility			2	144	186	173	193	148	146	194
10 YR TOTAL 2007-2016	2,479	2,109	2,006	2,383	2,287	2,158	2,159	2,255	2,048	2,211

Figure 1: 10-Year Trend of All Wetland Permit Applications Received (2007 – 2016)

Figure 2 illustrates the nine-year trend for three categories of applications. In 2011, the Wetlands Bureau stopped issuing exemptions, variances, and waivers.



	2008 Total	2009 Total	2010 Total	2011 Total	2012 Total	2013 Total	2014 Total	2015 Total	2016 Total
SWQPA Permits	381	797	817	626	466	546	518	605	621
SWQPA Exemptions, Variances, and Waivers	68	5	6	0	0	0	1	1	1
SWQPA PBN	0	0	0	154	449	529	567	590	545
SWQPA TOTAL	449	802	823	780	915	1075	1086	1196	1167

Figure 2: Nine-Year Trend of Shoreland Permits Received (2008 – 2016)

Table 7 illustrates the amount of impacts permitted based on project type for 2016. The highest percentage of permitted impacts are for restoration and enhancement, dredge, road access, and lot development with the lowest percentage of permitted impacts for shoreline structures and fill.

Table 7: Permitted Wetland Impacts by Project Type for Calendar Years 2015 and 2016

Project Type	2015 Square Feet	Percent	2016 Square Feet	Percent
Restoration / Enhancement	479,449	15%	777,697*	36%
Dredge / Fill / Other (2015)	472,830	14%		
Maintenance	238,592	7%		
Dredge			531,355**	24%
Road Access / Bridge / Stream Crossings	1,591,387***	50%	407,351	19%
Lot Development / Commercial / Residential	296,520	9%	239,310	11%
Bank Stabilization	93,644	3%	108.912	5%
Other / Fill			72,202	3.34%
Shoreline Structures	40,690	2%	51,286	2%
Total	**3,213,122**	**100%**	**2,079,310**	**100.00%**

*The 2016 restoration / enhancement increase over the 2015 number was due to the new tracking metrics that included enhancement in addition to restoration.

** 298,000 square feet of impact was related to a large maintenance dredge associated with an existing marina.

***The 2015 roadway impacts were significantly larger due to the 2015 Interstate 93 highway permit.

The total impacts by wetland type are shown in Figure 3. Non-tidal wetlands are subject to the greatest loss at 18.6 acres or 56 percent. The tidal impacts are the lowest at 1 acre or three percent.

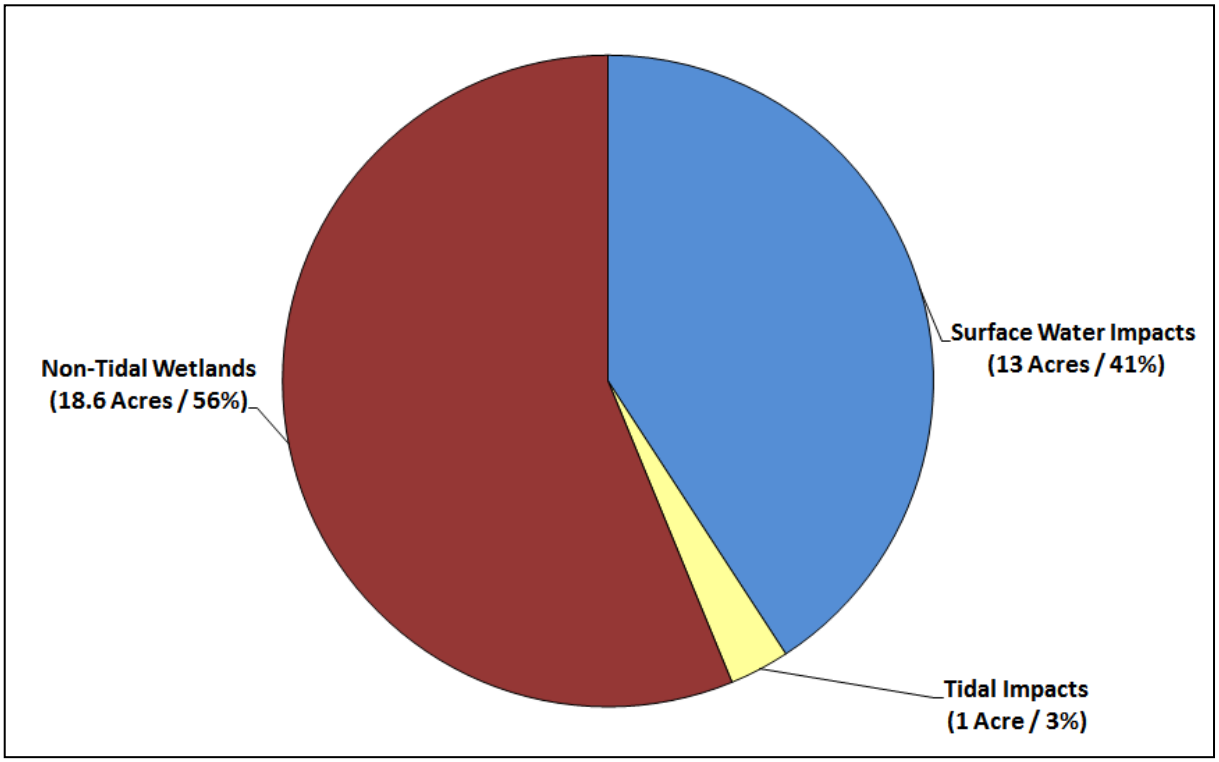


Figure 3: Permitted Wetland Impacts by Wetland Type for 2016

Figure 4 illustrates generalized permanent wetland impacts which required payment into the ARM Fund in 2016. The total amount of permanent wetland impacts which required mitigation was 13.44 acres. In addition, 5,415 linear feet of perennial streams and 4,242 linear feet of intermittent stream were impacted. It is important to note that a significant amount of these impacts are related to the I-93 roadway extension which added wetland impacts of 9.58 acres, 4,039 linear feet of perennial stream and all the intermittent stream impacts. In addition, there were five projects with approximately 8.9 acres of temporary impacts that paid into the ARM Fund These projects are generally linear utility upgrade projects that use matting for access across wetlands.

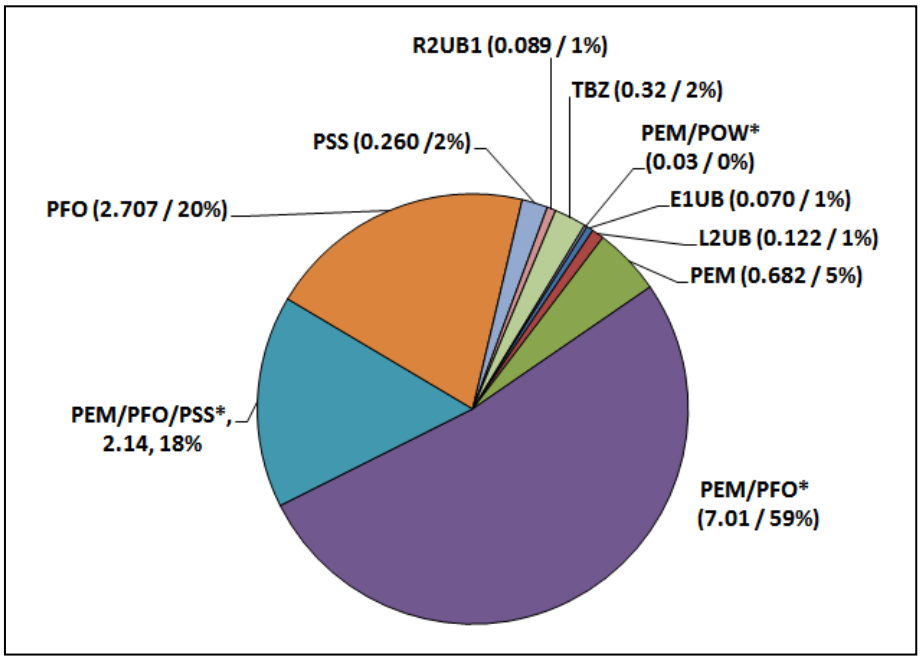


Figure 4: Types of Wetland Impacts in Square Feet That Required Payment into the ARM Fund in 2016

Figure 5 illustrates the large percentage of municipal and highway projects which contribute to over half of the ARM Fund payments (Impacts depicted in square feet).

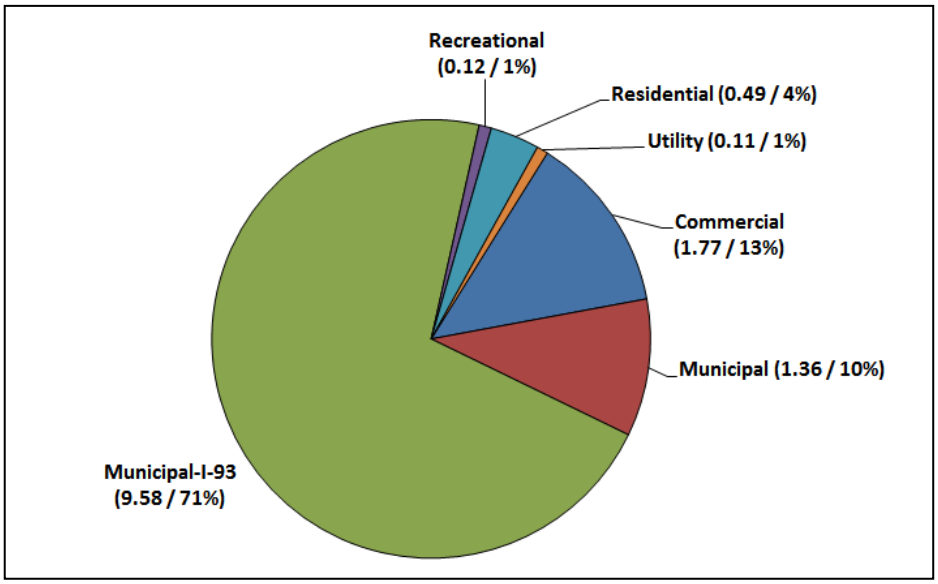


Figure 5: Summary of 2016 Wetland Impacts Requiring ARM Fund Payment by Project Type

COMPLIANCE ACTIVITIES

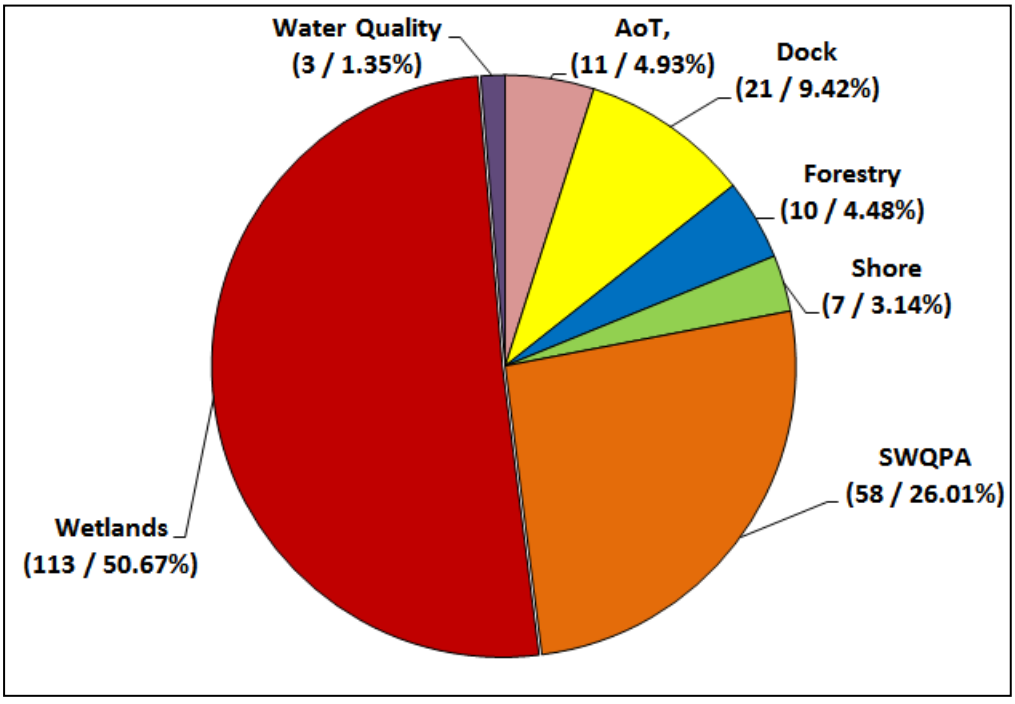
Complaints Received

In 2016, the Wetlands Bureau received 223 written complaints. The program breakdown for these complaints is as follows: 151 complaints alleging violations of RSA 482-A, the NH Wetlands Statute; 58 complaints alleging violations of RSA 483-B, the Shoreland Water Quality Protection Act (SWQPA); 11 complaints alleging violations of RSA 485-A, Alteration of Terrain; and three complaints alleging water quality complaints.

Of the 151 complaints alleging violations of RSA 482-A, 113 (50.67 percent) related to the dredge / fill of wetlands, 21 complaints (9.42 percent) related to docking structures, 7 complaints (3.14 percent) related to beaches or retaining walls, and 10 complaints (4.48 percent) related to forestry and logging operations. Table 8 and Figure 6, below, includes a breakdown by percentage:

Table 8: Number and Percentage of Complaints by Type for Calendar Year 2016

Category	Description	Number	Percentage
WET	Wetlands (Dredge and Fill)	113	50.67%
SWQPA	Shoreland Water Quality Protection Act	58	26.01%
DOCK	Docks	21	9.42%
AOT	Alteration of Terrain	11	4.93%
FORESTRY	Forestry / Logging	10	4.48%
SHORE	Beaches, Retaining Walls	07	3.14%
WQ	Water Quality	03	1.35%
		223	**100%**



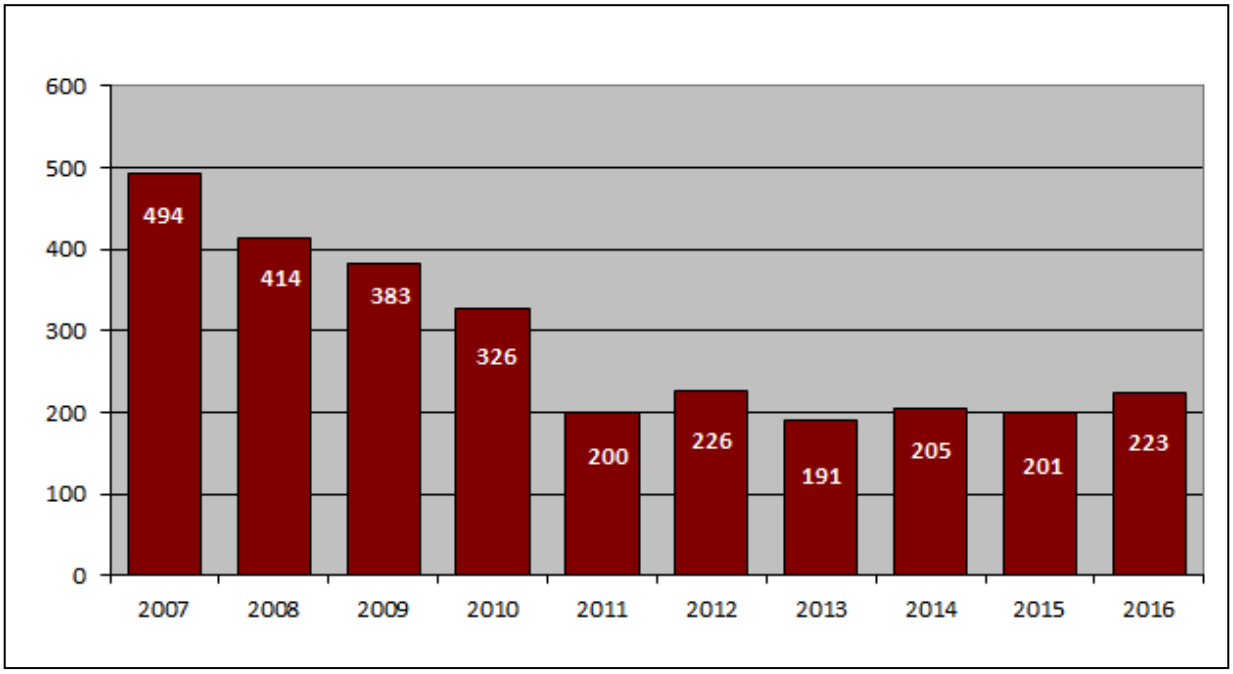


Figure 6: Number and Percent of Complaints by Type for Calendar Year 2016

Figure 7: **10-Year Trend of Number of Complaints Received (2007 - 2016)**

Compliance Actions Taken

If possible, the Wetlands Bureau attempts to resolve minimal violations during or immediately following a site inspection through informal means by issuing an on-site restoration request or by issuing a Letter of Deficiency. In cases where the impact is larger or more environmentally damaging, where the violator has a prior enforcement history, or if the violator is unwilling to work cooperatively with the Wetlands Bureau to correct the deficiencies, more formal action(s) may be taken in the form of an Administrative Order, referral to the Department of Justice, and/or imposition of administrative or civil penalties. An 11-year trend of wetland compliance actions by type is illustrated in Table 9 below.

Table 9: 10-Year Trend of Wetland Compliance Action by Type (2007-2016)

Compliance Action Type	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Complaints Received	494	414	383	326	200	226	191	205	201	223
Informal Actions / Requests	63	65	50	41	40	20	22	265	337	276
Notices of Past Violations	06	06	19	05	12	07	58	49	20	07
Letters of Deficiency	113	99	92	55	28	34	27	44	42	42
Administrative Fines	09	05	07	11	09	04	01	03	02	03
Administrative Orders	09	16	19	14	18	04	03	17	06	03
Referrals to the Department of Justice	03	07	06	05	03	01	02	05	09	05
TOTALS	**697**	**612**	**576**	**457**	**310**	**296**	**304**	**588**	**617**	**559**

The Wetlands Bureau will also seek fines consistent with its statutory authority and the Compliance Assurance Response Policy (CARP). In 2016, the Wetlands Bureau collected approximately $103,260 in administrative fines and civil penalties. The reduction in money collected can be attributed to receiving fewer complaints than in the past and a reduction in compliance staff to perform inspections of permitted sites. Civil penalties and administrative fines collected for violations of RSA 482-A are illustrated in Figure 9.

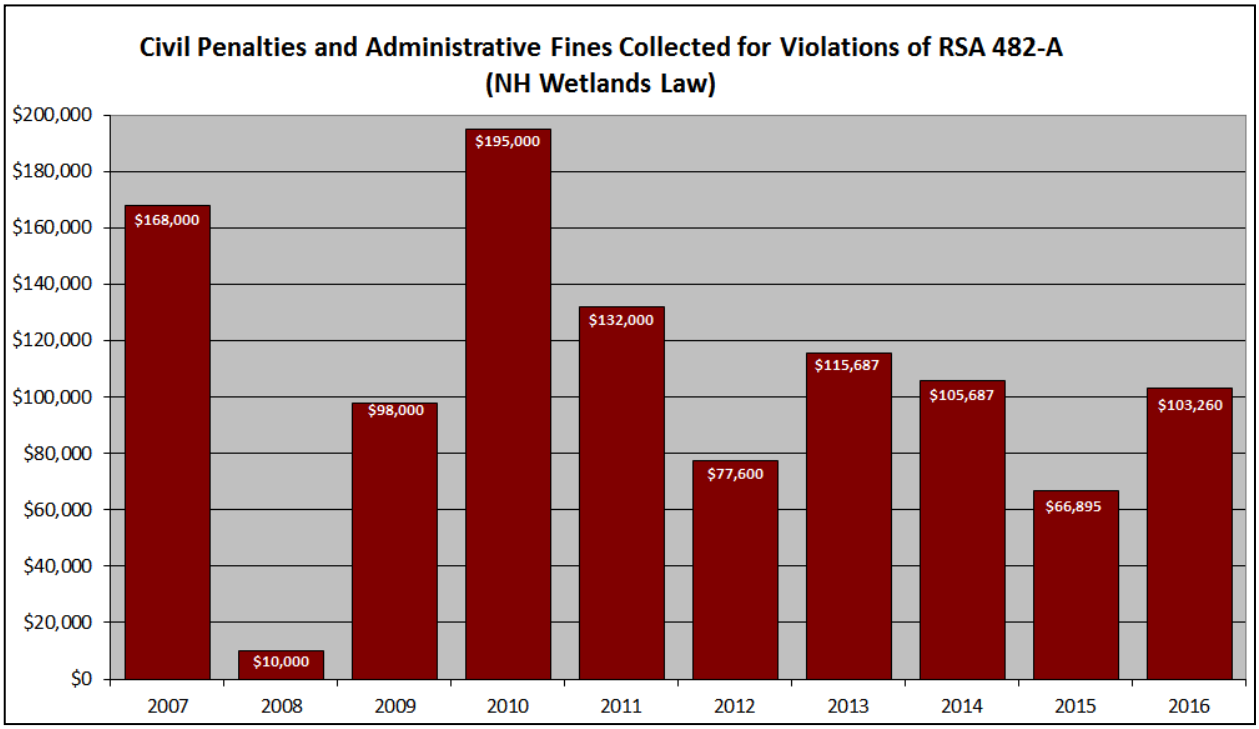


Figure 8: Civil Penalties and Administrative Fines Collected for Violations of RSA 482-A

2016 Permit Compliance Initiative

The compliance section has historically relied on the public to report suspected wetland violations. This "complaint-based" system, while effective, has resulted in a "reactive" approach to compliance. In response to new initiatives within the Land Resources Management Program, the compliance section has begun to conduct inspections of various permitted projects. Conducting field inspections of permitted projects allows NHDES regional compliance inspectors to establish and maintain a stronger field presence with a more proactive approach, ensuring that projects adhere to the conditions specified in the corresponding permit.

Thus, in addition to performing inspections of files associated with complaints, in 2016 the Alteration of Terrain, Shoreland and Wetlands programs conducted inspections of permitted projects. The purpose of these inspections was to ensure compliance with permits and permit conditions, perform inspections that are not solely complaint-based, and respond to stakeholder comments. A cross-section of permit types (notifications, standards, etc.) and towns were selected. Staff then sent notification letters to the property owners prior to the inspections. During the inspections, staff used program-specific checklists to determine whether the completed projects were consistent with the approved plan, consistent with permit conditions, and therefore in compliance with the permit.

In all, two interns performed 221 inspections of Alteration of Terrain permits. Of those 221 inspections, 123 (55.7%) were in full compliance, 39 (17.6%) were in partial compliance, 14 (6.3%) were in noncompliance, and 45 projects (20.4%) were not started.

One staff performed 30 inspections of approved/issued Shoreland notifications/permits. Of those 30, 10 (33.3%) were in full compliance, 9 (30.0%) were in partial compliance, 5 (16.7%) were in noncompliance, and five projects (16.7%) were not started.

Four staff performed 157 inspections of approved/issued Wetlands notifications/permits. Of those 157, 109 (69.4%) were in full compliance, 30 (19.1%) were in partial compliance, 6 (3.8%) were in non-compliance, and 12 projects (7.6%) had not been started.

In addition, 67 Alteration of Terrain permits that were inspected also had associated Wetlands permits that were also inspected. Including these additional 67 Wetlands permits, the total number of Wetlands permits inspected was 224, with 148 (66.1%) in full compliance, 39 (17.4%) in partial compliance, 11 (4.9%) in noncompliance, and 26 projects (11.6%) not started.

In total, 475 projects associated with Alteration of Terrain, Shoreland, and Wetlands permits were inspected in 2016 to which 281 (59.2%) were in full compliance, 87 (18.3%) were in partial compliance, 30 (6.3%) were in noncompliance, and 76 projects (16.0%) were not started.

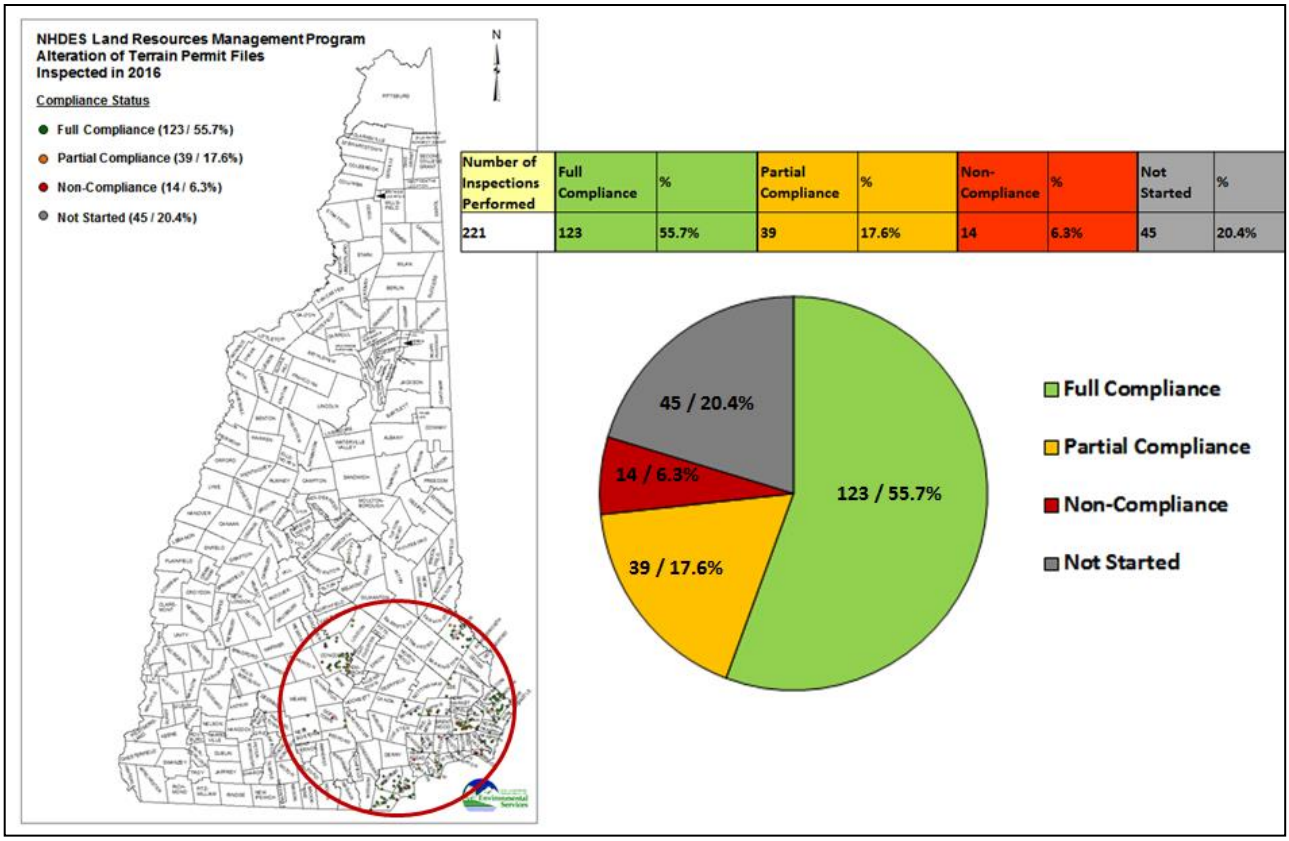
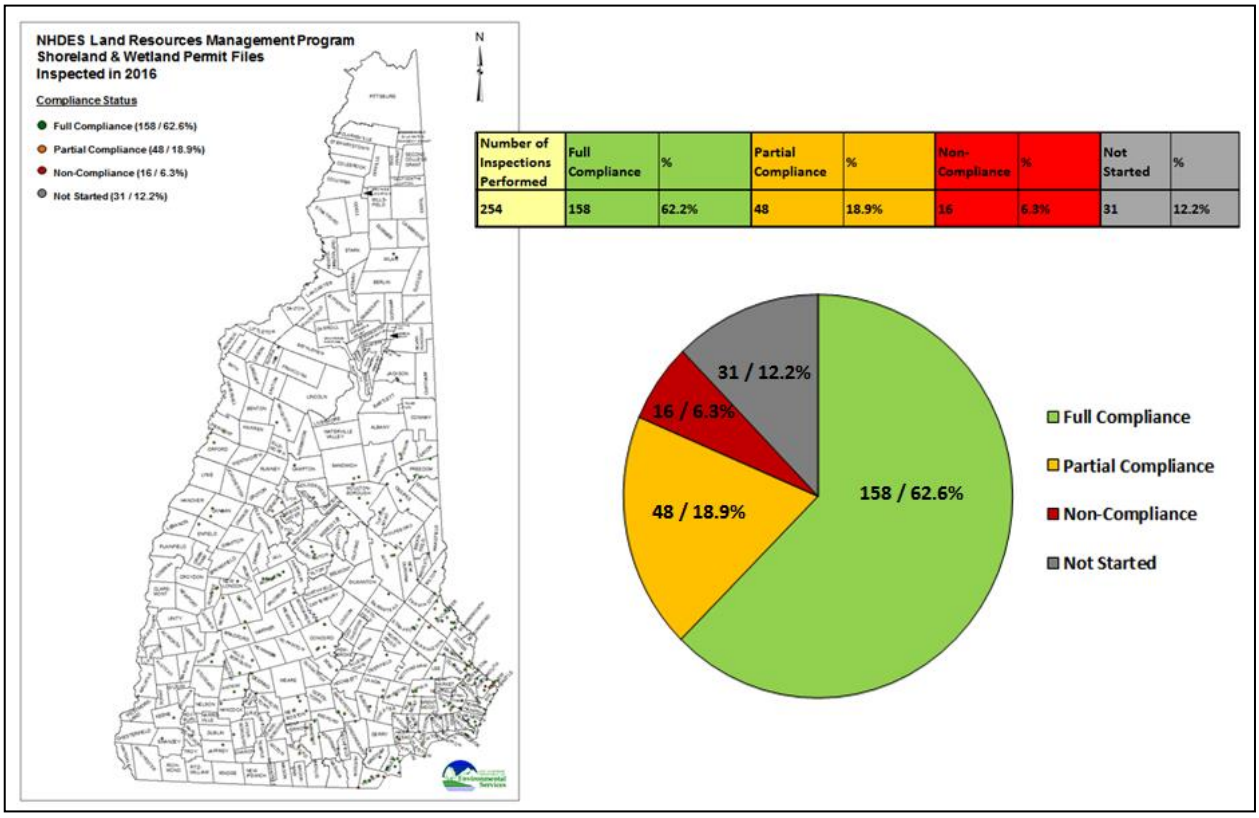
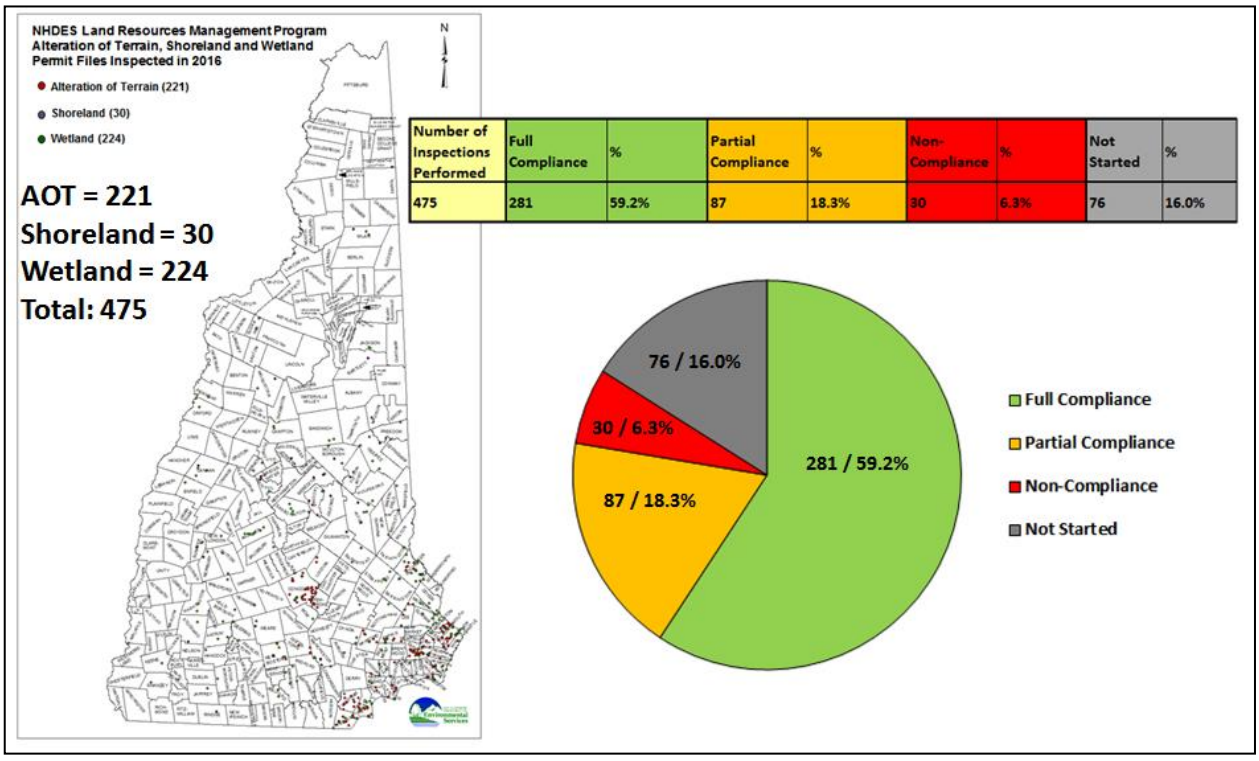


Figure 9: Summary of 2016 Alteration of Terrain Compliance Inspections of Permitted Projects (With Compliance Status)



Number of Inspections Performed	Full Compliance	%	Partial Compliance	%	Non-Compliance	%	Not Started	%
254	158	62.2%	48	18.9%	16	6.3%	31	12.2%

Figure 10: Summary of 2016 Shoreland and Wetland Compliance Inspections of Permitted Projects (With Compliance Status)



Number of Inspections Performed	Full Compliance	%	Partial Compliance	%	Non-Compliance	%	Not Started	%
475	281	59.2%	87	18.3%	30	6.3%	76	16.0%

Figure 11: Summary of 2016 Alteration of Terrain, Shoreland, and Wetland Compliance Inspections of Permitted Projects (With Compliance Status)

AQUATIC RESOURCE MITIGATION FUND PROGRAM

Since the ARM Fund was established in 2006, 136 applicants have used this form of mitigation and these funds have been used to support projects that restore, enhance and preserve aquatic resources and upland buffers. The program has been very successful for grant applicants and has resulted in approximately 12,275 acres of land conservation, 100 acres of wetland restoration, and over 45 miles of stream passage improvements. The in-lieu fee option has become a good option for applicants needing to provide compensatory mitigation. The total funds collected since the program was established totals $13,748,100, which has funded 60 projects.

In fiscal year 2016 (July 1, 2015, through June 30, 2016), 21 permits involving a payment were issued that resulted in 13 acres of wetland loss, 1,604 linear feet of stream loss, and 7.39 acres of temporary impacts including secondary impacts due to conversion of forested wetlands to emergent or scrub shrub wetlands. The fund received approximately $3.1 million in the payments collected. During this time frame, ARM Fund grants were awarded to restore a salt marsh through a living shoreline concept, restore five acres of oyster reef, 11 acres of floodplain forest, and preserve an additional 2,381 acres of land. The total of funds collected in fiscal year 2016 was over $6.3 million of funds which was leveraged to complete the grant projects.

The operation of New Hampshire's In-Lieu Fee (ILF) program is carried out pursuant to 33 CFR Parts 325 and 332 known as the federal "mitigation rule." The *NH ARM Fund Final In-Lieu Fee Program Instrument* was executed in March 2012 to comply with the federal mitigation rule. The document can be found at the Federal Instrument link:
http://www.nae.usace.army.mil/Portals/74/docs/regulatory/Mitigation/NHinstrument051812.pdf

NHDES is the qualified program sponsor and administrator for the ARM Fund program. NHDES works with the Army Corps of Engineers to ensure that the requirements for aquatic resource mitigation are being met. NHDES is solely responsible for providing compensatory mitigation for projects which have paid into the ARM Fund. The procedures and guidelines for coordinating compensatory mitigation requirements for permits issued by the Army Corps in New Hampshire are specifically addressed in the Program Instrument. The ARM Fund may be used for permit actions involving (a) Corps General Permits, (b) NHDES permits, and (c) Army Corps and NHDES individual permits. Occasionally the Army Corps may deem it appropriate to require additional payment to adequately compensate for temporary or secondary impacts of a project. If this occurs, the funds are accepted into the ARM Fund for the applicant to receive a state and federal permit. Additional payment may also be required by the Army Corps based on the functions and values lost and other environmental issues they find that need to be compensated.

The 2012 Instrument establishes guidelines, responsibilities, and standards for the establishment, use, operation and maintenance of the ARM Fund. The signatories to this instrument recognized that cooperation between and among the Army Corps, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and NHDES is critical to the continued development of a high-quality mitigation program and share a commitment to continue efforts that have been on-going since adoption of the ARM Fund program. In the coming year, the Instrument will be updated and a five-year status and trends summary prepared. The amended Instrument will not require a public notice but will be formally updated in 2022.

Program Improvements (July 1, 2015 through June 30, 2016)

The ARM Fund is one of several compensatory mitigation options available to permittees for impacts to wetlands and other aquatic resources. This mitigation option is available for use after avoidance and minimization of impacts to these aquatic resources has been achieved. Although compensatory mitigation is often a requirement in permits, use of the ARM Fund can only occur after the applicant has reviewed other available forms of mitigation in the vicinity and local community.

NHDES is required to track, by service area, income received, the source of the income, and any interest earned by the program. To address federal requirements, a ledger has been developed to include a list of all permits for which in-lieu fee program funds were accepted, including the appropriate state and federal permit number, the service area in which the specific authorized impacts are located, the amount (acreage or linear feet) of authorized impacts, the aquatic resource type impacted by Cowardin class, the amount paid to the in-lieu fee program for each of the authorized impacts, and the date the funds were received. A summary of the projects and payments made into the ARM Fund is available on the NHDES website for review as well as being posted by NHDES on the Regulatory In-lieu fee and Banking Information Tracking System managed by the Army Corps which can be viewed by the public.

Over the past 18 months, rule revisions to Env-Wt Chapter 800 were undertaken as the rules were due to expire in June of 2016. The program coordinator engaged stakeholders in discussions on the revisions and gathered their suggestions on how to improve the mitigation process. The participants at three meetings included the Army Corps, EPA, NH Department of Resources and Economic Development Natural Heritage Bureau, NHDOT, Associated General Contractors of New Hampshire, NH Association of Natural Resource Scientists, private consultants and a representative of the NH Association of Conservation Commissions. The meetings included the review of revisions to Env-Wt 101 (definitions) and 501 (application procedures) which were filed with the Office of Legislative Services along with the re-adoption proposal for Env-Wt 800 (with amendments). The rulemaking notices and initial proposal were published in the Rulemaking Register on June 18, 2015, with a public hearing held on July 30, 2015.

The NHDES proposed rule revisions strengthens the mitigation program by requiring the use of the NH Method for proposed impacts to each minor or major project and allows NHDES to better measure the success of the mitigation program by establishing new mitigation procedures. The rules require a pre-application meeting for all mitigation projects thus improving the quality of wetland and plant community resource impact information received. Additional rule revisions allow NHDES to be provided more science-based information to inform the ARM Fund award process with special emphasis on stream mitigation requirements.

A final program improvement undertaken this fiscal year was collaborating with the NHGS and NHDOT to establish an inventory of deficient culverts or stream crossings on the state transportation system that fragment stream reaches. With this information, the program would then have the opportunity to fund high-priority deficient culverts through ARM funds. A program development grant was submitted to the EPA to continue the collaboration between NHDES, NHDOT, NHFG, and NH GRANIT to perform additional stream assessments, and to attempt to develop a system to prioritize the replacement of crossings with the most potential to exacerbate the effects of climate change. Assessment scores relative to the aquatic organism passage constraints and geomorphic compatibility conditions will be collected to address rehabilitation of existing infrastructure as mitigation for other roadway projects. The stream passage improvement program is a new and promising model of collaboration and utilization of limited funds for measurable environmental gains.

FY 2016 Permits Issued with ARM Fund as Compensatory Mitigation Component

In FY 2016, 21 permits involving an ARM Fund payment were issued that resulted in 13 acres of wetland loss, 1,604 linear feet of stream loss, and 7.39 acres of temporary impacts including secondary impacts due to conversion of forested wetlands to emergent or scrub shrub wetlands. Table 10 provides a list of the projects permitted from July 1, 2015, to June 30, 2016, where the wetland permit holders selected payment to the ARM Fund to satisfy mitigation requirements.

Table 10: Wetland Permits Issued in FY 2016 Using ARM Funds (07/01/2015 – 06/30/2016)

Town NHDES File Number	Service Area	Wetlands Loss		Stream Loss	Temporary Impacts	
		Square Feet	Acres	Linear Feet	Square Feet	Acres
Alexandria 2016-00181	Pemigewasset-Winnipesaukee	3864		22		
Belmont 2016-00043	Pemigewasset-Winnipesaukee			107		
Concord 2015-00720	Merrimack	20,657	0.47		50,068	1.15
Dalton 2015-00833	Middle CT		0.00	30		0.00
Deerfield 2013-02154	Salmon Falls-Piscataqua	341	0.01			0.00
Dixville 2015-01719	Upper CT		0.00	474		0.00
Hampton Falls 2016-00552	Salmon Falls-Piscataqua			55		
Hooksett 2012-03271	Merrimack		0.00			0.00
Keene 2015-01505	Lower CT	20,167	0.46			0.00
Littleton and & Monroe 2015-01687	Middle CT	48,245	1.11		114,321	2.62
Londonderry, Salem Windham, Derry, Manchester 2014-03446	Merrimack	417,433	9.58			0.00
Nashua 2015-03105	Merrimack		0.00	880	932	0.02
Newington 2013-02918	Salmon Falls-Piscataqua	14,093	0.32			0.00
Plaistow 2004-00763	Merrimack	28,071	0.64			0.00
Portsmouth 2015-02637	Salmon Falls-Piscataqua		0.00		10,800	0.25
Portsmouth 2016-00553	Salmon Falls-Piscataqua			4		
Rochester 2015-02926	Salmon Falls-Piscataqua	7,150	0.16			0.00
Rochseter 2015-03359	Salmon Falls-Piscataqua	288	0.01		25,518	0.59
Troy 2015-02423	Lower CT	5,330	0.12			0.00
Troy & and Fitzwilliam 2014-02128	Lower CT	636	0.01	32	120,383	2.76
Tuftonboro 2015-03287	Pemigewasset-Winnipesaukee	176	0.00			0.00
TOTALS		**566,451**	**13**	**1,604**	**322,022**	**7.39**

ARM Fund Disbursements in FY 2016

The ARM Fund program grants funds to projects involving wetland and/or stream restoration, wetland enhancement, and/or preservation of upland buffers associated with high quality aquatic resources. The projects that were provided payment during FY 2016 are noted in Table 11 as well as active projects with encumbered funds to be spent in the coming year.

Table 11: ARM Fund Disbursements for Projects in FY 2016 and Active Projects

Project Name: Fogg Hill Conservation Area			
Applicant: Lakes Region Conservation Trust	**Watershed:** Pemigewasset-Winnipesaukee	**Town:** Center Harbor	
ARM Funds Disbursed in FY 2016: $98,500.00	**Total ARM Fund Grant Awarded in 2013:** $98,500.00	**ARM Fund Amount Spent to Date:** $98,500.00	**Remaining Amount Encumbered:** $0.00
Description: The Fogg Hill Bog wetland restoration and land conservation project conserved 192 acres in Center Harbor including a prime wetland (the only kettle hole bog in Center Harbor), several significant ecological areas with extensive wildlife habitat for moose, bear, deer, and turkey, rare plant species, two old growth forest patches, one of the highest hills in town with high visibility, and the immediate watershed to Lake Waukewan; a public water supply. The property is located within one of the highest conservation priority areas based on the Town Natural Resources Inventory completed in 2011. It lies within Center Harbor's largest unfragmented forest block (950 acres), and there is the potential for additional land conservation projects nearby in the future if this parcel is conserved.			
Project Name: Garrison Conservation Project			
Applicant: South East Land Trust of NH	**Watershed:** Salmon Falls-Piscataqua	**Town:** Brentwood & Fremont	
ARM Funds Disbursed in FY 2016: $15,000.00	**Total ARM Fund Grant Awarded in 2014:** $15,000.00	**ARM Fund Amount Spent to Date:** $15,000.00	**Remaining Amount Encumbered:** $0.00
Description: The Southeast Land Trust of NH (SELTNH) negotiated with the owner of a 32.18 acre property to permanently protect approximately eight acres of wetland and 24.18 acres of upland buffer in the regionally-significant Spruce Swamp. SELTNH completed a Natural Resources Conservation Service (NRCS) Wetland Reserve Easement (WRE) on the entire property. The Garrison property is located entirely within the Spruce Swamp Area which the property and its surrounding forest are one of the few wilderness areas remaining in southern New Hampshire. The Swamp is an 824 acre fen nestled in a 1,700+ acre unfragmented forest. The SELTNH acquired the property with NRCS holding the easement.			
Project Name: Great Dam Removal			
Applicant: Town of Exeter	**Watershed:** Salmon Falls-Piscataqua	**Town:** Exeter	
ARM Funds Disbursed in FY 2016: $0.00	**Total ARM Fund Grant Awarded in 2015:** $100,000	**ARM Fund Amount Spent to Date:** $0.00	**Remaining Amount Encumbered:** $100,000.00
Description: The Town of Exeter proposes to remove the Great Dam in downtown Exeter. The project has the opportunity to benefit the diadromous fish populations in the Exeter River and the wider Great Bay Estuary, enhance the natural and human ecosystem by improving water quality, and reduce Exeter's vulnerability to the growing risk of flooding. The removal project would restore approximately 15 miles of the Exeter River and its tributaries to a free-flowing condition, eliminating a barrier to migrating anadromous fish and improving water quality. The proposed project involves eliminating the following structures from the river: the reinforced concrete run-of-river dam consisting of a spillway, a fish ladder, and a small lower dam (or weir) structure, a low-level outlet, and a penstock. The project also includes reshaping the river channel within the footprint of the existing dam and the area immediately upstream and downstream using a natural channel design approach based on sound fluvial geomorphic principles. The location is within the historic community center that is under Town ownership.			

Project Name: Multi-Habitat Restoration in Cutts Cove			
Applicant: UNH /Jackson Estuarine Laboratory	**Watershed:** Salmon Falls-Piscataqua	**Town:** Portsmouth	
ARM Fund Disbursed in FY 2016: $0.00	**Total ARM Fund Grant Awarded in 2015:** $134,736.00	**ARM Fund Amount Spent to Date:** $0.00	**Remaining Amount Encumbered:** $134,736.00
Description: The primary goal of this project is to restore a suite of tidal marsh habitats that reflects the current distribution of low marsh, high marsh and tidal buffer zone relative to the tidal regime at the site, and will be resilient in the face of sea level rise for decades to come. Restoration includes portions of Cutts Cove with habitats that are absent or poorly functioning by 1) enhancing the diversity and quality of 90,000 square feet of mudflat habitat through addition of native shell substrate, 2) creating a living shoreline of rock sill with shellfish and expanding a remnant patch of existing salt marsh by 40,500 square feet and creating a vegetated tidal buffer zone (8,000 square feet), 3) Removal of 700 linear feet of armoring along the Cutts Cove shoreline, 4) Improved (created) Tidal Buffer Zone (TBZ 8,050 square feet) with functional connections to marsh and upland along 700 feet of artificial shoreline providing for habitat migration in the future, and 5) Public outreach and interpretation using signage to be developed in conjunction with the City of Portsmouth for their Gateway Park.			
Project Name: Oyster Reef Restoration in Great Bay Estuary			
Applicant: The Nature Conservancy	**Watershed:** Salmon Falls-Piscataqua	**Town:** Greenland / Newington	
ARM Fund Disbursed in FY 2016: $0.00	**Total ARM Fund Grant Awarded in 2015:** $190,500.00	**ARM Fund Amount Spent to Date:** $0.00	**Remaining Amount Encumbered:** $190,500.00
Description: The primary goal of this project is to improve water quality in the Great Bay Estuary (GBE) by retaining nutrients and trapping sediments. Secondary goals and benefits will restore fish and aquatic habitat, ecological integrity, and wetland dependent wildlife habitat. The project proposes to restore five acres of oyster reef. Reefs will be restored by placing a total of 500 cubic yards of clean surf clam into the estuary, and seeding these areas with live oysters raised at the Jackson Estuarine Laboratory. This project also addresses the cumulative impacts of excess nutrient and sediment inputs to tidal resources from not just tracked wetland impacts, but a variety of land uses across the watershed that contribute to the water quality impairments of the GBE. In fall 2016, UNH will conduct a post-construction underwater video assessment to verify surf-clam coverage across the new reef. They will also use a fixed-area benthic sampler to retrieve surf-clam and spat-on-shell to estimate annual natural recruitment and initial density of live oysters for the reef. Each fall for the next five consecutive years (2017-2021), UNH will use the benthic sampler for retrieval of reef material to determine annual recruitment rates and live density estimates.			
Project Name: Guinea Ridge Road Conservation Area			
Applicant: Lakes Region Conservation Trust	**Watershed:** Merrimack	**Town:** Gilmanton	
ARM Funds Disbursed in FY 2016: $168,432.37	**Total ARM Fund Grant Awarded in 2014:** $184,080.00	**ARM Fund Amount Spent to Date:** $168,432.37	**Remaining Amount Encumbered:** $15,647.63
Description: This project permanently protected approximately 86 acres of land on one parcel of land located on Guinea Ridge Road in Gilmanton. The parcel is located within the focus area of the Belknap Range Conservation Coalition (BRCC). The project protects approximately 21 acres of wetlands and 65 acres of upland along a significant wetland and perennial stream resource located in the BRCC Focus Area. Approximately 3,600 linear feet of perennial stream buffers would be protected as well as upland buffers along the stream and complex of wetlands. The parcel contributes to connections between lands that are not protected and protects over-land connections between a wetland that is part of a large system that covers 91.6 acres and includes a perennial stream that is one of the headwater tributaries to the Suncook River and one 10-acre upland island.			
Project Name: Shost Trust Conservation Easement			
Applicant: Society for the Protection of NH Forests	**Watershed:** Merrimack	**Town:** Goffstown	
ARM Funds Disbursed in FY 2016: $150,000.00	**Total ARM Fund Grant Awarded in 2014:** $150,000	**ARM Fund Amount Spent to Date:** $150,000.00	**Remaining Amount Encumbered:** $0.00
Description: The Shost Trust Project permanently protects an undeveloped 177-acre property through the purchase of a conservation easement. The Society for the Protection of NH Forests worked in partnership with the Goffstown Conservation Commission to protect important wetland and stream buffers, vernal pools, and approximately 16.9 acres of active open fields for hay production and wildlife habitat, and about 147 acres of managed, working forests. The property includes one large, 22-acre open wetland complex that was designated as prime in 2005, several smaller forested wetlands, at least three vernal pools, and an unnamed perennial stream which drains south to the Piscataquog River and then to the Merrimack River. The Shost property has 1,275 feet of frontage along Snook Road.			

Project Name: McQuesten Brook Restoration Project			
Applicant: NH Rivers Council and Town of Bedford	**Watershed:** Merrimack	**Town:** Bedford	
ARM Funds Disbursed in FY 2016: $0.00	**Total ARM Fund Grant Awarded in 2015:** $345,000	**ARM Fund Amount Spent to Date:** $0.00	**Remaining Amount Encumbered:** $345,000.00
Description: The McQuesten Brook watershed covers 563 acres in Bedford and Manchester. McQuesten Brook originates in Bedford, flows into Manchester, collects outlet waters from McQuesten Pond before flowing under Second Street, through the Eastman Avenue and Wathen Road wetland complex in Bedford and under the Everett Turnpike to meet the Merrimack River. The two stream crossings that carry McQuesten Brook through the Eastman Avenue and Wathen Road wetland complex are severely undersized and listed in the *2012 305(b)/303(d) Surface Water Quality Assessment* for failure to support aquatic life due to insufficient dissolved oxygen concentration and saturation and for excessive chlorides. These impairments threaten the survival of the naturally reproducing population of Eastern Brook Trout that currently thrive in portions of McQuesten Brook. In addition, McQuesten Brook has also been impacted by hydrologic and habitat modification resulting from the presence of these under-sized stream crossings. The project proposes the installation of an appropriately sized (14-foot width) stream crossing at Eastman Avenue and fully daylighting McQuesten Brook at Wathen Road through culvert and road fill removal to increase hydraulic and sediment transport capacity throughout the reach. Restoring full aquatic organism passage at both Eastman Avenue and Wathen Road will increase access to about 1,950 feet of McQuesten Brook between I-293 and South Main Street. It will remove barriers and re-connect 2.57 acres of wetland habitat within this reach of McQuesten Brook.			
Project Name: Hinman Pond II			
Applicant: Bear-Paw Regional Greenways	**Watershed:** Merrimack	**Town:** Hooksett	
ARM Funds Disbursed in FY 2016: $75,000.00	**Total ARM Fund Grant Awarded in 2014:** $75,000.00	**ARM Fund Amount Spent to Date:** $75,000.00	**Remaining Amount Encumbered:** $0.00
Description: This proposal includes the acquisition of six parcels owned by Manchester Sand and Gravel for the conservation of 218 acres in Hooksett. The project will combine Bear-Paw ownership with a conservation easement held by the New Hampshire Fish and Game Department. More than 12,000 acres of this unfragmented area have already been protected in this area. The entire 218-acre property lies within a conservation focus area identified in the 2010 NH Wildlife Action Plan (WAP) map that is more than 18,000 acres in size. The properties contain 21 wetland complexes totaling 25 acres. They range in size from 0.02 acre vernal pools to a ten acre beaver flowage. The majority of the wetland complexes are associated with depression systems and forested drainage ways. Nine vernal pools were identified throughout the site; however, NHFG has identified other potential vernal pools that may be productive in wetter years. There are no restoration opportunities on the parcels.			
Project Name: Crooked Run Property			
Applicant: Bear-Paw Regional Greenways	**Watershed:** Merrimack	**Town:** Barnstead, Pittsfield, Strafford	
ARM Funds Disbursed in FY 2016: $11,600	**Total ARM Fund Grant Awarded in 2012:** $361,600.00	**ARM Fund Amount Spent to Date:** $350,000	**Remaining Amount Encumbered:** $0.00
Description: The primary goal of this project is to purchase a conservation easement to be held by Bear-Paw to conserve approx. 600 acres of valuable wildlife habitat. The parcel includes 85 acres of wetlands, 3 miles of perennial streams, most of the frontage on the 30 acre Adams Pond, and almost half of the frontage on Wild Goose Pond. The wetlands include 57 acres of marshland, 26 acres of other wetlands, 2 acres of peatland and the 30 acre Adams Pond. The unfragmented forest that includes Crooked Run is large – more than 2,000 acres in extent connecting a 6,000 acre block that includes Evans Mountain property and a 16,000 acre block just to the north. Nine restoration sites that total 16,900 square feet will be restored including removal of a bridge from a perennial stream, fill removal and slope stabilization adjacent to high value peatlands.			

Project Name: Black Brook Preserve			
Applicant: Piscataquog Land Conservancy	**Watershed:** Merrimack	**Town:** Goffstown	
ARM Funds Disbursed in FY 2016: $70,000.00	**Total ARM Fund Grant Awarded in 2015:** $70,000.00	**ARM Fund Amount Spent to Date:** $70,000.00	**Remaining Amount Encumbered:** $0.00
Description: In March 2015, the Piscataquog Land Conservancy (PLC) pre-acquired the 101-acre parcel using bridge financing from The Conservation Fund, as it was in imminent danger of being sold for development. The PLC stepped in as an interim buyer with borrowed funds and currently holds the land with no conservation restriction. The Town of Goffstown has signed a purchase and sales agreement with PLC to provide funds to acquire a conservation easement on the property and towards additional project costs. The property abuts and will expand PLC's 126-acre Blackbriar Woods Preserve, and will provide protection for, via fee ownership and a conservation easement and fee ownership, 23.24 acres of wetlands, a third of which are designated Prime Wetlands along the entire southern boundary, 13 vernal pools, 2,900 linear feet of Black Brook, 2,500 linear feet of intermittent stream, and approximately four acres of open water beaver ponds. The property has over 3,000 feet of intermittent streams and approximately four acres of beaver ponds. The property's entire southern boundary along Black Brook is designated as Prime Wetland. There are documented sightings of Blanding's and Wood Turtles on the property.			
Project Name: Avery Brook Watershed Project			
Applicant: Francestown Land Trust	**Watershed:** Merrimack	**Town:** Francestown	
ARM Funds Disbursed in FY 2016: $1,703.60	**Total ARM Fund Grant Awarded in 2012:** $237,000.00	**ARM Fund Amount Spent to Date:** $237,000.00	**Remaining Amount Encumbered:** $0.00
Description: The project involved the purchase of a conservation easement by Francestown Land Trust to protect 182 acres,which is the entire catchment of Avery Brook as it meanders through forestland and exemplary wetland communities to its confluence with the Piscataquog River. Restoration work includes lowering a perched culvert, installing water bars on a logging road, and enhancing 200 feet of a riparian buffer. No-cut buffers around aquatic resources are included in the conservation easement. The Avery Brook catchment connects and enhances the ecological function of over 3,700 acres of biologically diverse protected land. The property includes the entire length of Avery Brook west, nearly all of Avery Brook East, and frontage along the South Branch of the Piscataquog River.			
Project Name: McQuesten Pond Dam Removals			
Applicant: NH Rivers Council	**Watershed:** Merrimack		**Town:** Manchester
ARM Funds Disbursed in FY 2016: $8,000.00	**Total ARM Fund Grant Awarded in 2013:** $65,400.00	**ARM Fund Amount Spent to Date:** $21,200.00	**Remaining Amount Encumbered:** $44,200.00
Description: McQuesten Brook is listed as impaired for failure to support aquatic life due to insufficient dissolved oxygen concentration and saturation. The brook is also impaired for excessive chlorides. McQuesten Pond fails to support aquatic life due to insufficient dissolved oxygen content and fails to support primary contact recreation due to excessive concentrations of Chlorophyll-a. The presence of two dams within McQuesten Pond have interrupted hydraulic connectivity, stream geomorphology, and wetland functions, and are one of the primary sources of impairment along with stormwater runoff. The ultimate goals of this project are to develop construction plans for four obsolete stream barriers in a portion of McQuesten Brook that has been artificially impounded to form McQuesten Pond, and then remove the barriers to restore stream and wetland functions. The completed project will provide an additional 1,500 linear feet of trout habitat once the restored channel has stabilized and a riparian buffer will be established for shading and cooling stream temperatures.			
Project Name: Beaver Brook Restoration Project			
Applicant: City of Keene	**Watershed:** Lower Connecticut River		**City:** Keene
ARM Funds Disbursed in FY 2014: $41,999.85	**Total ARM Fund Grant Awarded in 2014:** $277,707.00	**ARM Fund Amount Spent to Date:** $41,999.85	**Remaining Amount Encumbered:** $235,707.15
Description: The proposed project includes restoration of approximately one acre of historically filled wetlands within the Beaver Brook watershed in the City of Keene. The proposed restoration will advance the ongoing effort to restore Beaver Brook, augment flood storage in this area of the City, and create additional scientific and educational opportunities that complement on-going projects within the Watershed. The proposed restoration parcel is contiguous with Robin Hood Park, which is a 110-acre conservation parcel. A large colony of invasive Japanese knotweed will be removed. Research of the parcel deed and two abutting parcels is also proposed to protect the area in perpetuity.			

Project Name: Falls Brook Stream Restoration			
Applicant: Cheshire County Conservation District	**Watershed:** Lower Connecticut River		**Town:** Swanzey
ARM Funds Disbursed in FY 2016: $25,256.92	**Total ARM Fund Grant Awarded in 2015:** $165,000.00	**ARM Fund Amount Spent to Date:** $25,256.92	**Remaining Amount Encumbered:** $139,743.08
Description: Cheshire County Conservation District, with assistance from Trout Unlimited, seeks to improve aquatic organism passage, particularly for brook trout, in the Falls Brook culvert located on Hale Hill Road which is two and one quarter miles upstream of the confluence with the Ashuelot River. Falls Brook sub-watershed was identified as the second highest priority sub-watershed due to the amount of high quality cold water headwaters habitat throughout this stream network. The majority of Falls Brook consists of excellent brook trout thermal refugia and spawning habitat. The anticipated restoration will replace an undersized culvert, potentially hazardous to community infrastructure and stream geomorphology during extreme storm events, whereby protecting the long term viability of local wetlands. The new structure will be a steel stringer bridge design allowing for full passage of all organisms as well as the stream flows related to the one hundred year storm event.			
Project Name: West Hill – California Brook Conservation Project			
Applicant: Monadnock Conservancy	**Watershed:** Lower CT River		**Town:** Keene, Swanzey and Chesterfield
ARM Funds Disbursed in FY 2016: $140,000.00	**Total ARM Fund Grant Awarded in 2014:** $140,000.00	**ARM Fund Amount Spent to Date:** $140,000.00	**Remaining Amount Encumbered:** $0.00
Description: The Monadnock Conservancy used funds to acquire two conservation easements on the 552-acre West Hill Property in Keene, Swanzey, and Chesterfield. These easements will protect 25.8 acres of wetland, 526.2 acres of upland, approximately 16,850 feet of streams, 13 potential vernal pools, and 3 known vernal pools. The project includes some of the acreage subject to forever wild restrictions as part of the landowner negotiations. The conservation easement on the larger tract will allow for forest management and include a 100-foot riparian buffer in order to protect the aquatic resources. The West Hill property consists of six wetlands that provide shoreline stabilization for streams and ponds, four perennial streams associated with the wetlands (including a beaver pond) that provide fish and aquatic habitat, with all of these streams flowing into the Ashuelot River.			
Project Name: Smith Pond Shaker Forest			
Applicant: Upper Valley Land Trust	**Watershed:** Lower CT River		**Town:** Enfield
ARM Funds Disbursed in FY 2016: $0.00	**Total ARM Fund Grant Awarded in 2015:** $362,385.00	**ARM Fund Amount Spent to Date:** $0.00	**Remaining Amount Encumbered:** $362,385.00
Description: The Upper Valley Land Trust proposes a fee acquisition of 995 acres of the Smith Pond Shaker Forest which contains 114.5 acres of wetlands, 16,900 feet of perennial stream, and 13,100 feet of intermittent stream. This represents almost six miles of stream habitat and 5.2 miles of streambank on perennial streams. The remote 68 acre Smith Pond is the stunning wetland centerpiece of the property, and it is surrounded by other high quality wetlands and mature forest. It has a total of 17,560 feet of pond shoreline habitat and encompasses over 15 different types of wetlands including a large pond, forested wetland, high-gradient streams with pools, medium gradient stream with associate riparian wetlands in some meanders, emergent marsh, vernal pools, and even two beautiful waterfalls. This project encompasses headwater streams of the Mascoma River watershed. Intact forested buffers will cover at least 370 acres of the property and over the long term should provide the highest quality context for all of the wetlands and streams, particularly as natural levels of course woody debris are added to the various ecosystems. New and existing trails will be relocated wherever they have direct detrimental effects on wetlands. Restoration opportunities exist in areas impacted by previous logging operations and a perched culvert in Shaker Brook will be replaced with a bridge.			
Project Name: Ammonoosuc Floodplain Restoration Project			
Applicant: Ammonoosuc Conservation Trust	**Watershed:** Middle Connecticut River		**Town:** Lisbon
ARM Funds Disbursed in FY 2016: $65,943.63	**Total ARM Fund Grant Awarded in 2013:** $66,000.00	**ARM Fund Amount Spent to Date:** $65,943.63	**Remaining Amount Encumbered:** $56.37
Description: The primary goal of this project is to begin the restoration and enhancement process on the property acquired via the 2012 ARM Fund grant. The ACT's long-term goals are to restore and protect floodplain forest and restore / create riparian, wetland, and upland functions and values on the site. Additional goals are to buffer and enhance the Hanno Pond wetland complex and provide increased educational and recreational values. This proposal seeks to restore a four-acre hayfield to a riparian forested buffer and to plant the existing Ammonoosuc River bank with dormant stakes. Included in the project is a culvert removal and wetland restoration at the current agricultural crossing of the unnamed perennial brook that parallels Route 302. The restoration will provide about 1,600 square feet of habitat in this area.			

Project Name: Bailey-Clay Brook Property			
Applicant: Upper Valley Land Trust	**Watershed:** Middle Connecticut		**Town:** Lyme
ARM Funds Disbursed in FY 2016: $32,028.00	**Total ARM Fund Grant Awarded in 2013:** $43,378.00	**ARM Fund Amount Spent to Date:** $11,350.00	**Remaining Amount Encumbered:** $0.00
Description: This project will protect 4.88 acres of wetlands west of Route 10, including 2,044 linear feet of a brook frontage, 1.97 acres of wetlands within the portion of the property east of Route 10, as well as the 45+ acres of undeveloped upland surrounding these aquatic resources. The "Bailey-Clay Brook property" is located both adjacent to and in close proximity with other permanently conserved lands and creates a protected corridor between these otherwise unconnected conserved lands. These highly diverse wetlands and the undeveloped corridor are important for wildlife movement and ecological integrity. Permanent protections will be accomplished through the acquisition of a conservation easement on 50 acres of the property to be held by the Upper Valley Land Trust. This property includes 3,780 linear feet of frontage along NH Route 10, part of the Connecticut River National Scenic Byway, making it a highly visible landmark within the community.			

ARM Fund Awards Announced in December 2015

NHDES announced the availability of funds in nine service areas in March 2015. The amount of funding available, functions and values to be replaced, and amount of resource loss is noted in Table 12.

Table 12: ARM Funds Available for the 2015 Grant Round

Service Area	Functions and Values to be Replaced	Wetland Loss (Square Feet)	Stream Loss (Linear Feet)	Total Funds Available
Androscoggin River	Groundwater recharge / discharge, sediment retention	21,735		$61,000
Saco River	Wildlife and fisheries habitat, shoreline anchoring, groundwater discharge	9,497	329	$22,000
Pemigewasset Winnipesaukee Rivers	Floodflow alteration, nutrient removal, sediment retention, bank impacts (this includes impacts related to carry-over funds)	160		$83,000
Salmon Falls – Piscataqua Rivers	Wildlife and fisheries habitat, cutting in buffer to streams, flood storage, sediment and nutrient retention	Tidal: 101,230 Permanent 53,299 Temporary Non-Tidal: 45,552 Permanent 12,547 Temporary		Tidal: $327,000 Non-Tidal: $148,000
Merrimack River	Groundwater recharge / discharge, nutrient removal, sediment retention, wildlife habitat, shoreline stabilization, endangered species habitat	46,289 Permanent 185,536 Temporary	624	$950,000
Lower Connecticut River	Shoreline stabilization, groundwater recharge / discharge, sediment / toxicant retention, floodflow alteration, nutrient removal	57,574	338	$510,000
Contoocook River	Shoreline stabilization, wildlife habitat, nutrient removal, sediment retention	112 Permanent 390,587 Temporary		$174,000
Middle Connecticut River	Shoreline stabilization, wildlife habitat	14,172 Permanent 46,805 Temporary	25	$100,000
Upper Connecticut River	Shoreline stabilization		25	$5,000

Thirty-six pre-proposals were submitted and reviewed by NHDES and the Committee and feedback was provided. Full application submittals were received August 31, 2015. The Saco River service area did not receive any applications, and one application submitted for the Pemigewasset-Winnipesaukee River service area was deemed ineligible. The funds in those service areas will be advertised in 2016.

The members of the Site Selection Committee, representatives from the Army Corps, EPA, Natural Resource Conservation Service and NHDES staff visited 16 sites on September 22, 2015, September 23, 2015, September 29, 2015, October 13, 2015 and October 26, 2015. On October 29, 2015, the Committee and federal agency representatives convened to evaluate and rank the applications and determined funding amounts for the projects. The Committee's recommendations were approved by the Army Corps and the Wetland Council. The following summaries provide details of the awards announced by the Committee and a brief description of the gain in resources from each project awarded funds according to the service areas.

Androscoggin River Service Area

- **$61,000** to the Town of Milan to permanently protect 6.6 acres to add to the Milan Community Forest, which will be protected through a conservation easement. A management plan will be written with an objective for habitat protection. The proposed acquisition is located on the Androscoggin River with approximately 420 feet of river frontage. Approximately 13 percent of the parcel is in the 100-year flood plain.

Salmon Falls to Piscataqua River Service Area

- **$190,500** to The Nature Conservancy to restore a total of five acres of oyster reef to improve water quality in the Great Bay Estuary (GBE). Secondary goals and benefits of the project will restore fish and aquatic habitat, ecological integrity, and wetland dependent wildlife habitat. The two restoration tracts will be located adjacent to existing restoration areas, creating a contiguous twelve-acre reef block in the GBE in Greenland.

- **$135,000** to the University of New Hampshire Jackson Laboratory for a multihabitat restoration project in Cutts Cove, Portsmouth along the slope of a City Park property. Restoration includes portions of Cutts Cove with habitats that are absent or poorly functioning by 1) enhancing the diversity and quality of 90,000 square feet of mudflat habitat through addition of native shell substrate, 2) removal of 700 linear feet of armoring along the Cutts Cove shoreline, and 3) improved connections to marsh and upland along 700 linear feet of artificial shoreline providing for habitat. The added structure for mudflats using shell will increase heterogeneity of substrate and support greater benthic diversity, important as prey items for higher trophic levels (including fish).

- **$148,000** to the Society for the Protection of New Hampshire Forests to purchase 195 acres in fee from three separate entities and create a new forest reservation in the towns of Durham, Madbury and Lee. The conservation parcel contains 84 acres of wetlands, 5,100 linear feet of frontage on the Oyster River, which is the drinking water source for the Town of Durham and UNH, 800 feet of frontage on Dube Brook, and overlies an aquifer. Three confirmed vernal pools are on the parcel with several rare plants as well as documentation for Blanding's turtles and American eel with 12 other occurrences of rare and threatened wildlife within the Oyster River corridor.

Merrimack River Service Area

- **$180,000** to the New Hampshire Rivers Council for stream passage improvements on McQuesten Brook in Bedford. The project proposes the installation of an appropriately sized (14-foot wide) stream crossing at Eastman Avenue and fully daylighting McQuesten Brook at Wathen Road through culvert and road fill removal to increase hydraulic and sediment transport capacity throughout the reach. Restoring full aquatic organism passage at both Eastman Avenue and Wathen Road will increase access to about 1,950 feet of McQuesten Brook. A previous ARM Fund grant provided funds for the removal of dams in Manchester to improve fisheries habitat and stream connectivity upstream of this location.

- **$70,000** to the Piscataquog Land Conservancy to acquire a conservation easement on a 101-acre Goffstown property which abuts and expands the existing 126-acre Blackbriar Woods Preserve. The project will provide protection for 23.24 acres of wetlands, a third of which are designated Prime Wetlands along the entire southern boundary, 13 vernal pools, 2,900 linear feet of Black Brook, 2,500 linear feet of intermittent stream, and approximately four acres of open water beaver ponds. The property also has over 3,000 linear feet of intermittent streams and approximately four acres of beaver ponds. There are documented sightings of Blanding's and wood turtles on the property.

- **$300,000** to the City of Concord for the acquisition of two parcels located off of Lakeview Road and West Parish Road in the Penacook Lake Watershed. Penacook Lake is the city of Concord's primary source of drinking water and is designated as a class "A" water body. The majority of the property consists of forested upland with sloping hills that drain toward the lake, and contains palustrine wetlands, intermittent and perennial streams, and vernal pools. Acquisition of the land will link other protected land in the area, adding to a block of approximately 900 acres of conservation land within the Penacook Lake Watershed.

- **$217,200** to Bear-Paw Regional Greenways to permanently protect two Pittsfield properties with more than 500 acres in the Wild Goose Pond watershed. The proposed conservation easements include 38 wetland areas covering over 68 acres (including 12 vernal pools), over one mile of riparian habitat, and 1,000 linear feet of frontage on Wild Goose Pond. The project includes six restoration sites which are associated with woods road culvert crossings.

Lower Connecticut River Service Area

- **$362,385** to the Upper Valley Land Trust for the fee acquisition of 995 acres of the Smith Pond Shaker Forest property in Enfield. The property contains 114.5 acres of wetlands, 16,900 linear feet of perennial stream and 13,100 linear feet of intermittent stream. This represents almost six miles of stream habitat and 5.2 miles of stream-bank on perennial streams. The remote 68 acre Smith Pond is the stunning wetland centerpiece of the property, and it is surrounded by other high quality wetlands and mature forest. Intact forested buffers will cover at least 370 acres of the property and over the long term should provide the highest quality context for all of the wetlands and streams, particularly as natural levels of course woody debris are added to the various ecosystems.

- **$147,615** to The Monadnock Conservancy and The Nature Conservancy to protect over 29 acres of floodplain forest, hayfield and high quality oxbow wetlands through a conservation easement in Swanzey. The project involves conservation of 1,500 linear feet of the state designated Ashuelot River. The recommendation provides support to restore 11 acres of riparian wetlands, which are currently in hayfield, adjacent to the Ashuelot River and the surrounding 5.5 acres of oxbow wetlands, to be restored back to floodplain forest habitat. The *NH Wildlife Action Plan* ranks the majority of the project area as Tier 1, top-ranked habitat in the State.

Contoocook River Service Area

- **$150,000** to the Society for the Protection of New Hampshire Forests for the purchase of the 236-acre Brown property in Sutton. The Brown tract directly abuts the Forest Society's 1,054-acre Black Mountain Forest, which was conserved in 2010. The Black Mountain Forest in turn abuts the 4,565-acre Mt. Kearsarge State Forest and several other conservation parcels to create a block of over 9,000 acres of contiguous conservation land. One of the primary goals of this conservation project is the protection 2,100 linear feet of both sides of an un-named perennial stream which drains the property through the existing Black Mountain Forest and finally into Stevens Brook, a tributary to the Warner River. The property contains at least three rare plants, overlies a stratified drift aquifer, and at least 60 percent of a 28-acre old growth forest and woodland that contains trees over 350 years old.

Middle Connecticut River Service Area

- **$100,000** to the Ammonoosuc Conservation Trust to conserve 203 acres of forest land, 4,327 linear feet of frontage on the Ammonoosuc River, and over 7,500 linear feet of streams that drain across the site and into the Ammonoosuc including Black Brook and Barrett Brook, which are first and second order streams. This section of the river represents the beginning of the upper section of the Ammonoosuc River which is extremely bouldery with rapids and is an excellent fresh water fishery. The site is located upstream from municipal water sources at Lisbon and Woodsville and nearly the entire area is within either the "Highest Ranked Habitat in the Biological Region" or supporting area according to the NH Fish and Game Wildlife Action Plan.

Upper Connecticut River Service Area

- **$5,000** to Trout Unlimited to complete aquatic restoration work in the Nash Stream watershed in the towns of Odell and Stratford. The Nash Stream restoration project is a phased, multi-year effort to restore channel processes and habitat quality / connectivity so that the watershed supports an intact aquatic ecosystem, including native coldwater fish. In this final phase Trout Unlimited will restore over two miles of instream and riparian habitat that was damaged by a catastrophic dam break and subsequent channel alteration and complete up to 13,580 linear feet (2.6 miles) of tributary wood replenishment in the East Branch.

2016 ARM Funds Advertised

In March 2016, NHDES announced the availability of ARM funds accrued in all nine ARM Fund service areas (See Figure 13). The pre-proposal deadline was April 29, 2016, and 40 proposals were received. The deadline for submission of a full application was August 31, 2016. The full applications are reviewed by the Committee and representatives from the Army Corps and EPA. The Committee's recommendations will be provided to the Army Corps and the Wetland Council for final approval.

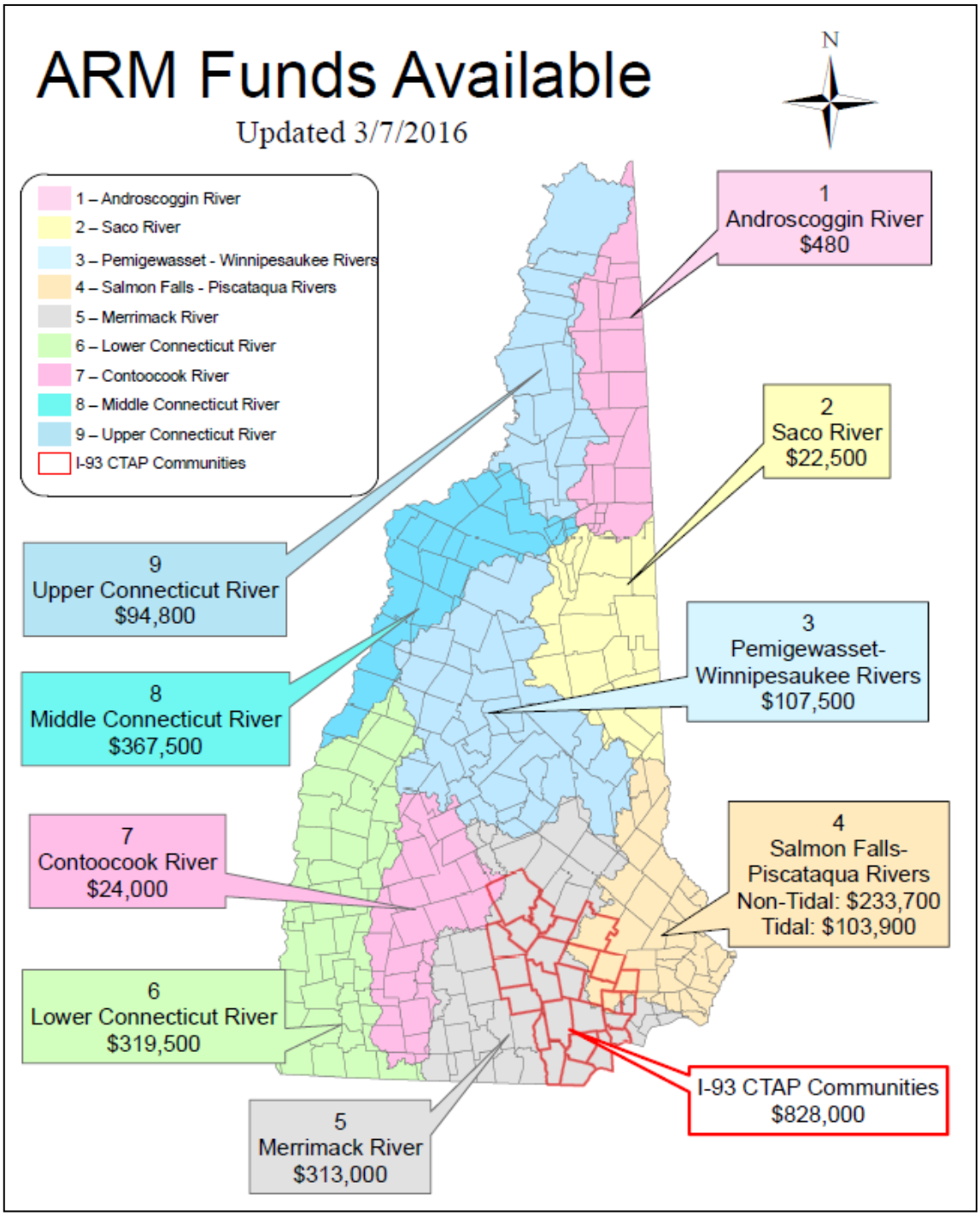


Figure 12: ARM Funds Advertised in 2016 According to Service Areas

Status of the ARM Fund Account

The FY 2016 ended with all nine ARM Fund service areas having a positive balance. The results of the 2016 grant round will be reported in the 2017 state fiscal year report. Table 13 describes revenues, expenses, encumbered funds and a balance according to each service area.

Table 13: Status of ARM Fund Accounts According to Service Areas

Service Areas	Beginning Balance (7/1/2015)	Revenues	Expenses	Encumbered	Ending Balance (6/30/2016)
Androscoggin River	$61,480.00	$ -	$ -	$ -	$61,480.00
Saco River	$22,947.16	$ -	$ -	$ -	$22,947.16
Pemigewassett to Winnipesaukee Rivers	$256,663.43	$36,768.83	$98,500.00	$ -	$194,932.26
Salmon Falls to Piscataqua Rivers	$848,558.27	$139,125.35	$15,000.00	$425,236.00	$547,447.62
Merrimack River	$1,527,688.53	$2,049,997.41	$484,735.97	$402,400.00	$2,690,549.97
Lower Connecticut River	$1,208,643.61	$172,803.32	$165,256.92	$737,835.23	$478,354.78
Contoocook River	$174,056.08	$ -	$ -	$ -	$174,056.08
Middle Connecticut River	$340,977.26	$231,832.93	$139,971.48	$56.37	$432,782.34
Upper Connecticut River	$5,000.00	$94,800.00	$ -	$ -	$99,800.00
Total All Watersheds	**$4,446,014.34**	**$2,725,327.84**	**$903,464.37**	**$1,565,527.60**	**$4,702,350.21**

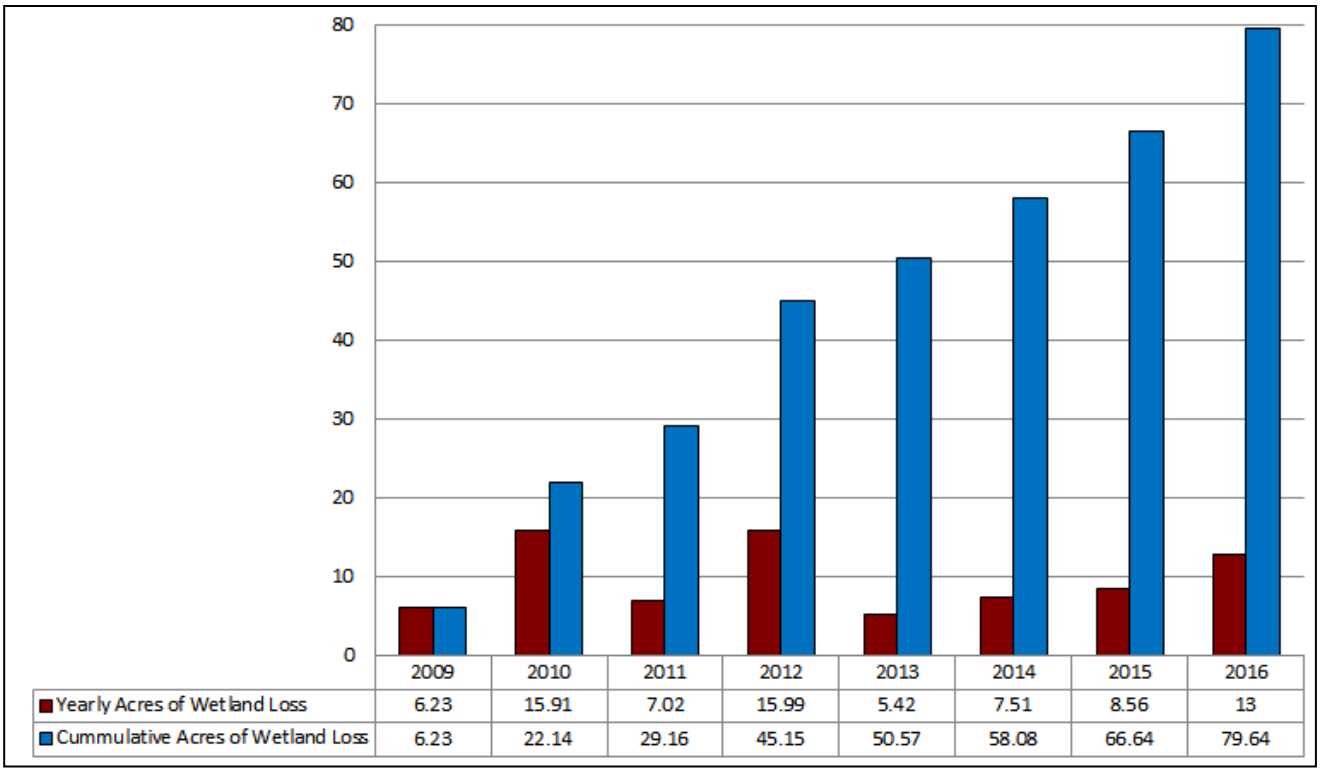
Status of Administrative Assessment Account

One component of an ARM Fund payment is an administrative assessment established by RSA 482-A:30, III and RSA 482-A:30-1,II. Such account assessments collected shall be used to support up to two full-time positions to administer the funds. The assessment has vacillated starting at 5% in 2009, 20% in 2010, 10% from 2011 through 2015 and is currently 20%. The status of the account is noted in Table 14.

Table 14: Status of Administrative Assessment Account

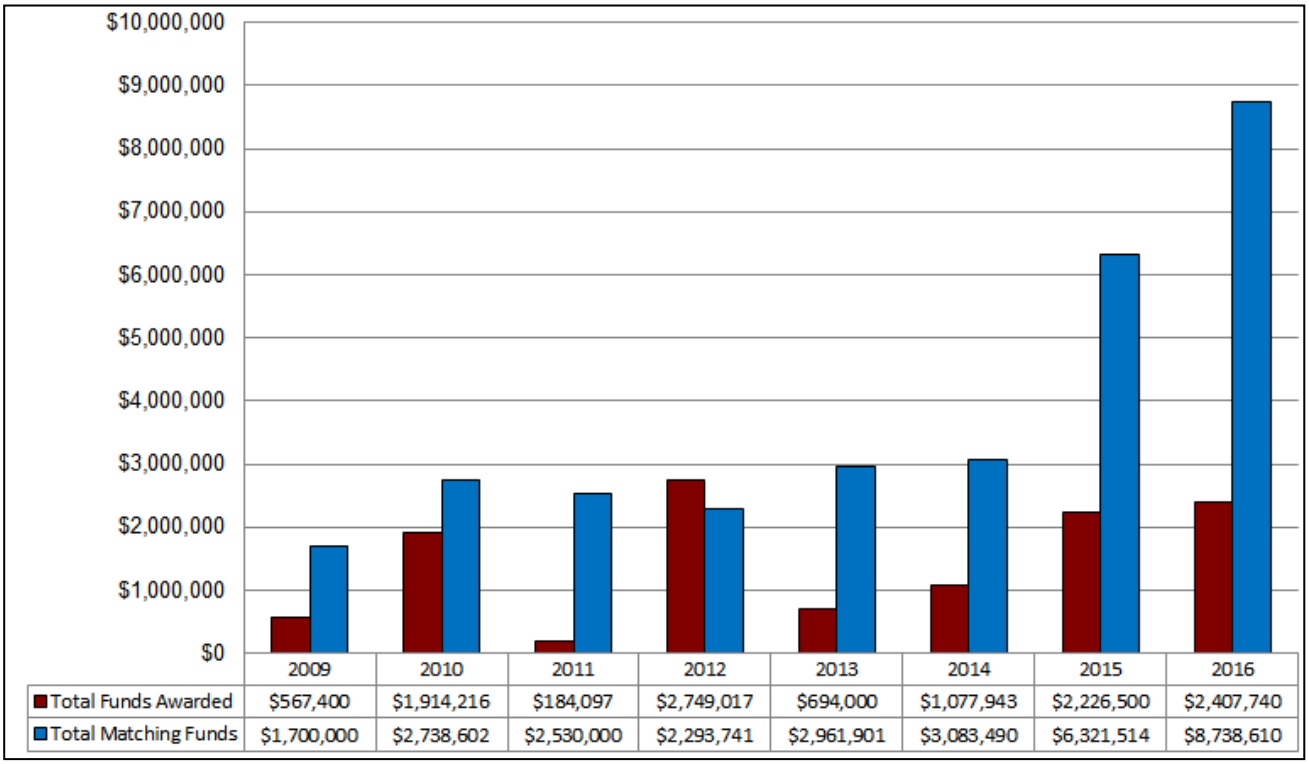
Beginning Balance (7/1/2015)	Revenues	Expenses	Ending Balance (6/30/2016)
$111,224.54	$370,505.70	$58,797.89	$311,707.81

For projects to be successful, it is important for applicants to leverage additional funds for completion of the project. The types of projects pursuing ARM Funds have had good success in securing multiple funding sources. Leveraged funds are defined as additional funding for a project that is counted toward completion of the project. Applicants are encouraged to pursue partnerships as much as possible and leveraged funds are noted in the budget materials. Figure 13 represents the eight-year trend of yearly and cumulative wetland acre loss from payments into the ARM Fund (2009 – 2016), Figure 14 represents the eight-year trend of ARM Funds and leveraged funds according to grant round (2009 – 2016), and Figure 15 represents the yearly and cumulative program acres of land conserved into the ARM Fund (2009 – 2016).



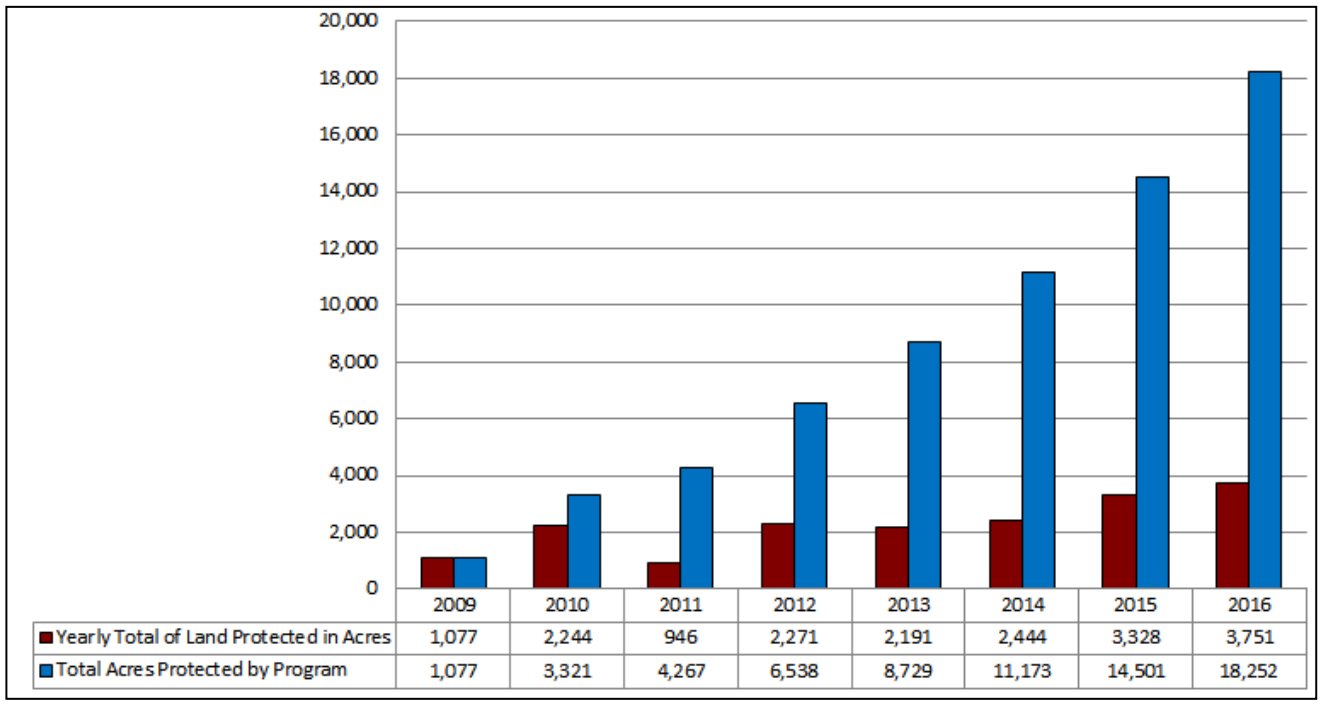
	2009	2010	2011	2012	2013	2014	2015	2016
Yearly Acres of Wetland Loss	6.23	15.91	7.02	15.99	5.42	7.51	8.56	13
Cummulative Acres of Wetland Loss	6.23	22.14	29.16	45.15	50.57	58.08	66.64	79.64

Figure 13: Eight-Year Trend of Yearly and Cumulative Wetland Acre Loss from Payments into the ARM Fund (2009-2016)



	2009	2010	2011	2012	2013	2014	2015	2016
Total Funds Awarded	$567,400	$1,914,216	$184,097	$2,749,017	$694,000	$1,077,943	$2,226,500	$2,407,740
Total Matching Funds	$1,700,000	$2,738,602	$2,530,000	$2,293,741	$2,961,901	$3,083,490	$6,321,514	$8,738,610

Figure 14: Eight-Year Trend of ARM Funds and Leveraged Funds According to Grant Round (2009-2016)



	2009	2010	2011	2012	2013	2014	2015	2016
Yearly Total of Land Protected in Acres	1,077	2,244	946	2,271	2,191	2,444	3,328	3,751
Total Acres Protected by Program	1,077	3,321	4,267	6,538	8,729	11,173	14,501	18,252

Figure 15: Yearly and Cumulative Program Acres of Land Conserved Into the ARM Fund (2009-2016)

LEGISLATION AND RULEMAKING

HB 1332 relative to adding a member with stream restoration experience to the ARM Fund Site Selection Committee to be jointly nominated by the Northeast Region of American Rivers and the New Hampshire Rivers Council was passed by the Resources, Recreation and Development (RR&D) Executive Committee on March 1, 2016. HB 1517 relative to setbacks for nontidal docks was discussed by the RR&D Committee on March 1, 2016. After a lengthy discussion, the committee recommended sending the bill to a study committee.

Rulemaking

The NHDES Wetlands Bureau had a particularly active year for rulemaking. In 2016, seven separate rules stakeholder meetings and four workgroup meetings were held. The stakeholder workgroups were diverse and included representatives from: timber harvesting, AGC, wetland scientists, Home Builders, TNC, regional planning commissions, conservation commissions, and state and federal partners. NHDES consulted with local public works directors, marine contractors, regional planning commissions, and UNH. In 2016 workgroups were held on mitigation, inland wetland rules, and shoreland rules. The Inland Wetland Workgroup also held subcommittee meetings on delineation and avoidance and minimization. The Wetlands Bureau held separate workgroups on the Best Management Practices for Utility Maintenance, Routine Roadway Maintenance, and Agriculture. The inland wetland rules are currently being drafted by the NHDES Legal Unit. Once the drafts are complete these will be vetted through the workgroup for comment.

Table 15: Rules Workgroup, Work Sessions and Stakeholder Meetings for Calendar Year 2016

Date	Meeting	Location
01/13/16	Wetland Rules Stakeholder Meeting	Concord, NH
02/10/16	Wetland Rules Stakeholder Meeting	Concord, NH
02/10/16	NHDOT Routine Roadway BMP Changes	Concord, NH
02/25/16	Coastal Adaptation Workgroup Meeting	Portsmouth, NH
02/25/16	Tidal Structures Workgroup Meeting	Portsmouth, NH
02/26/16	UNH Engineering Department Shoreline Stability Rating System Review	Durham, NH
03/02/16	Rockingham Planning Commission – Tides to Storm Report	Portsmouth
03/04/16	Wetland Rules Stakeholder Meeting	Concord, NH
03/22/16	UNH Sea Grant Cooperative Extension Sand Dune Rule Review	Portsmouth, NH
04/07/16	Wetland Rules Update Meeting	Manchester, NH
05/01/16	Marine Contractor Tidal Dock Stakeholder Input Meeting	Portsmouth, NH
06/14/16	Beach Maintenance for Public Works Stakeholder Meeting	Hampton, NH
06/16/16	Beach Maintenance for Public Works Stakeholder Meeting	Rye, NH
06/16/16	Tidal Marine Contractor Stakeholder Meeting	Portsmouth, NH
06/21/16	Tidal Marine Contractor Stakeholder Meeting	Portsmouth, NH
07/28/16	Coastal Adaptation Workgroup Meeting	Portsmouth, NH
08/25/16	Coastal Adaptation Workgroup Meeting	Portsmouth, NH

Mitigation Rules

The NHDES Wetlands Bureau held three Wetland Mitigation Workgroup stakeholder meetings to receive input on a draft version of the rules. The meetings were held on February 13, 2015, February 25, 2015, and March 11, 2015. Over 33 stakeholders were invited to share comments with Wetlands Bureau and most of those invited attended one or more of the meetings. A few issues were raised during the stakeholder process and changes were made to the draft rules to clarify and/or accommodate the concerns of the stakeholders.

On February 1, 2016, the NHDES Wetlands Bureau adopted new rules (Env-Wt 101, Env-Wt 501, and Env-Wt 800) to improve the technical standards as well as the operation of the Mitigation Program. Generally, existing requirements were clarified.

Specific existing requirements that were changed include:

1. Elimination of the one acre and three acre thresholds to correspond with RSA 482-A.

2. An additional methodology to be used in evaluating wetland function within a development site and for the proposed mitigation site.

3. Clarification when wetland and vernal pool creation is proposed.

4. Establishment of assessment of in-lieu payments for wetland and stream impacts with the understanding that there is no double counting for the payment amount.

5. Clarification that ARM Fund stream impact payments shall be noted separately from wetland impact payments.

6. Establishment of a pre-proposal process for ARM Fund requests.

7. Revisions to Site Selection Committee review of ARM Fund applications.

8. Revisions to the ARM Fund review criteria to incorporate changes for stream projects

New rule requirements include the following:

1. A new definition for the term “Certified Wetland Scientist” as defined in the statute.

2. A new definition for the term “Service area.”

3. A new definition for “Wetland enhancement” with a corresponding ratio requirement if this form of mitigation is selected.

3. A new requirement to schedule a pre-application meeting with NHDES and other state and federal regulatory agency personnel.

4. Clarification on information needed for stream restoration or enhancement proposals.

5. The method to calculate an in-lieu payment for stream impacts in order to comply with RSA 482-A:30-a that was adopted in 2010.

6. Clarification that a project is subject to federal requirements and that the applicant shall consult with the US ACE relative to whether additional mitigation will be required in order to satisfy federal mitigation requirements.

7. Adjustment to mitigation monitoring plan requirements.

8. Additional evaluation criteria related to stream passage improvement projects reviewed for funding through the ARM Fund.

One outcome of this effort was to implement a requirement for pre-application meetings to be held prior to submitting applications for projects that require compensatory mitigation. More details can be found under the Mitigation Grant update section. On February 11, 2016, Lori Sommer provided a mitigation and pre-application process training session for Land Resources Management staff

Shoreland Rules

The proposed Shoreland rule changes were reviewed by the Shoreland Advisory Committee in accordance with RSA 483-B:21 before the sunset of that Committee on December 31, 2015. The committee had no objection to any of the amendments needed to bring the rules into agreement with the current language of RSA 483-B. The Committee did suggest additional changes such as additional definitions addition modifications to the accessory structure standards which have not been incorporated but will be considered in future rulemaking. Because these definitions and accessory structure standards will affect activities the occur within areas that are subject to both Wetland Rules under RSA 482-A and RSA 483-B the decision made to delay in making these changes until proposed wetlands rule changes were drafted so that the programs could proposed language that would be consistent within both and thus be more clear and efficient for the regulated public.

COMMUNICATIONS AND OUTREACH / EDUCATION

During 2016, Wetlands and Shoreland staff presented at 23 workshops around the state reaching several hundred attendees. Topics included changes to RSA 482-A, the NH Wetlands Law, changes to RSA 483-B, the Shoreland Water Quality Protection Act, changes to wetlands and shoreland permit applications and procedures, erosion and sediment control best management practices, routine roadway and culvert replacement procedures, timber harvesting using BMPs in wetlands, vegetation maintenance within the protected shoreland, landscaping at the water's edge, among others. Table 16 below lists the date, event and location in which staff gave presentations in 2016.

Table 16: Wetlands and Shoreland Presentations for Calendar Year 2016

Date	Event	Location
01/19/16	Northeast Energy Direct Project Meeting	Brookline, NH
01/29/16	NH Association Natural Resources Scientists Annual Meeting	Concord, NH
03/10/16	Newington Conservation Commission Meeting (SWQPA Update)	Newington, NH
03/15/16	Granite State Designers and Installers Annual Meeting	Manchester, NH
03/31/16	Association of State Wetlands Managers Annual Meeting	Sheperdstown, VA
04/21/16	Municipal Officials Workshop	Temple, NH
04/09/16	Saving Special Places Annual Meeting	Alton, NH
04/28/16	Logging and the Law Workshop for Loggers	Colebrook, NH
05/06/16	Keys to Compliance: Erosion Control, Sediment Control, and Stormwater Management Workshop	Concord, NH
05/12/16	Logging and the Law Workshop for Loggers	Hillsborough, NH
05/19/16	Logging and the Law Workshop for Loggers	Wentworth, NH
06/18/16	Acton-Wakefield Watershed Alliance Annual Meeting	Wakefield, NH
06/29/16	Developing Water Quality Criteria for Wetlands	Webinar
07/12/16	National In Lieu Fee Program Training Workshop	Minnesota
07/26/16	Lake Sunapee Protective Association Annual Workshop	Sunapee, NH
07/29/16	Developing Water Quality Criteria for Wetlands	Webinar
08/23/16	Wetlands and Timber Harvesting Workshop	Bristol, NH
09/28/16	Licensed New Hampshire Pesticide Applicators Annual Workshop	Concord, NH
11/15/16	NH Realtor Workshop	Meredith, NH
11/19/16	Trailmasters Annual Meeting	Bartlett, NH
11/28/16	Septic Designer and Installers Workshop	Sunapee, NH
12/02/16	NH Land Surveyors Association Annual Meeting	Concord, NH
12/14/16	Logging in the Law Workshop for Municipal Officials	Salisbury, NH

The NHDES Wetlands Bureau also coordinated and provided several Land Resources Management Program training sessions during 2016, listed in Table 17 below. The training sessions were attended by approximately 40 Alteration of Terrain, Shoreland, Subsurface, and Wetlands technical staff. The training sessions were typically three hours long and competency evaluations were required to measure level of knowledge transfer. The trainings provided were in anticipation of a re-organization of the bureaus into a consolidated Land Resources Management Bureau.

Table 17: LRM Staff Cross-Training Workshops for Calendar Year 2016

Date	Topic
01/21/16	Shoreland Water Quality Protection Act - Historic Context
01/26/16	Shoreland Water Quality Protection Act RSA 483 B:1-3
01/28/16	Shoreland Water Quality Protection Act RSA 483-B:4
02/02/16	Shoreland Water Quality Protection Act RSA 483-B::5-5b
02/04/16	Shoreland Water Quality Protection Act
02/09/16	Shoreland Water Quality Protection Act (RSA 483-B:6-9, IV-d)
02/11/16	Shoreland Water Quality Protection Act (RSA 483-B:9,V(a))
02/16/16	Shoreland Water Quality Protection Act - Waterfront Buffer
02/18/16	Shoreland Water Quality Protection Act - RSA 483-B:9, V(b)-i
02/23/16	Shoreland Water Quality Protection Act – Natural Woodland Buffer
02/25/16	Shoreland Water Quality Protection Act – RSA 483-B:9, V(b)-i
03/01/16	Shoreland Rules – Env Wq 1400 – 1406.14
03/03/16	Shoreland Rules - Env-Wq 1406.04 – 1406.14
03/10/16	Wetlands Database – Shoreland Applications
03/22/16	Shoreland Sample Plan Interpretation Exercise
09/26/16	Wetlands Introduction, Jurisdiction, Project Classification, Application Process, Wetland and Resource Identification, Delineation
10/03/16	AOT Jurisdiction and Permit Process
10/05/16	Wetland Identification and Jurisdiction (Field Component)
10/13/16	Subsurface Systems Overview
10/17/16	Tools and Technology
11/07/16	Shoreline: Docks and Beaches
11/07/16	Forestry, Trails, and Utility Notification
11/14/16	Shoreland Water Quality Protection Act - Introduction and Jurisdiction
11/21/16	Performing a Compliance Inspection

Wetlands Bureau Improvements

The Wetlands Bureau had a very busy year implementing several improvements. The Wetlands Bureau adopted new mitigation rules effective February 1, 2016, and Shoreland rules in December of 2016. The Wetlands Bureau also adopted four new Standard Operating Procedures on pre-application meeting procedures, GIS screening, ARM Fund pre-proposal process, and ARM Fund disbursal.

The Wetlands Bureau also continued its Wetland Rules Stakeholder meetings and partnership work sessions were held on updating its Best Management Practices. A Utility Stakeholder meeting met and provided recommendations to update the Utility BMP Manual. NHDES and NHDOT held several meetings to discuss recommended changes to DOT's *Best Management Practices for Routine Roadway Maintenance Activities in New Hampshire* (2016 Draft). NHDES also met with DRED Trails Bureau and sought changes to update the *Best Management Practices for Erosion Control during Trails Maintenance and Construction*.

The Wetlands Bureau started new program initiatives as a result of a proposed re-organization and effect to develop measures to enhance overall program effectiveness. Two program initiatives of note are 1) start of a wetland permit compliance program (see Compliance Activities section beginning on page 21) and a LRM Training program. The trainings required presentations, competency measures, interactive plan interpretation, and field identification training.

Database Conversion

The Wetlands Bureau made great progress towards converting the old, unsupported Foxpro database to a stable Oracle database. The contract for the database conversion was awarded to Voyager Systems. On April 7, 2016, a Database Conversion Kickoff meeting with Voyager Systems was held. Testing and implementation of the new database was conducted by all administrative and technical staff in November and December of 2016 with an expected roll-out of the new database to occur in January of 2017.

Website Improvements

In 2016, the Wetlands Bureau launched a new pre-application meeting webpage. The pre-application review will accomplish the following:

- Provide clear and consistent direction to applicants.
- Improve communications between state / federal agencies and local entities.
- Ensure transparency of the process.
- Reduce rework by all parties thereby saving time and money.
- Promote environmentally sensitive land-use planning.
- Provide an efficient process that serves as an incentive for applicants to pursue "environmentally superior" designs.

In 2016 NHDES published a new factsheet on Permitting for Freshwater Docking Structures to assist applicants proposing to install waterfront docking structures.

The Rivers Management Protection Program also developed a GIS tool to screen the location of proposed NHDES projects in relation to the Designated Rivers corridor. Wetland and Shoreland applicants are required to notify their Local Rivers Advisory Committee when an application is proposing impact in one of the 18 Designated River corridors. A Designated Rivers GIS Tool was developed by the Watershed Management Bureau. All of the Wetlands Bureau Permit-by-Notification forms were updated to ensure consistency with existing rules with the goal being to reduce the number of requests for more information issued by NHDES.

CONCLUSION

In 2016, the NHDES Wetlands Bureau, as part of its applications for EPA Wetland Program Development grants, were able to achieve state Wetland Program Plan goals and objectives. These grants have furthered NHDES goals in each of the core elements of wetland compliance and enforcement, restoration and protection, data monitoring and assessment and water quality standards, outreach and education, and local capacity building. New mitigation rules were adopted, a new NHDES webpage was launched for wetland pre-application meetings, new mitigation procedures were established, a stream crossing steering committee was established, testing of an aquatic sampling protocol for development of water quality standards occurred, and NHB evaluation and assessment of plant community systems was enhanced.

A memorandum of agreement between DRED – NHB, NHDES, and Fish and Game was signed to establish procedures for the NHB Data Check tool. A GIS protocol was developed to document screening for wetland applications. NHDES contracted with Virginia Tech to update the National Wetland Inventory maps in the Merrimack River and the coastal watersheds. NHDES has partnered with UNH, NHDOT, Fish and Game, DRED – NHB, the State of Maine and internal partners to further our shared goals of protecting and preserving wetlands and the functions and values they provide.